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A RECORD & REVIEW *of* CURRENT THOUGHT AND ACTION

VOLUME TWENTY | *April, 1901* | NUMBER FOUR

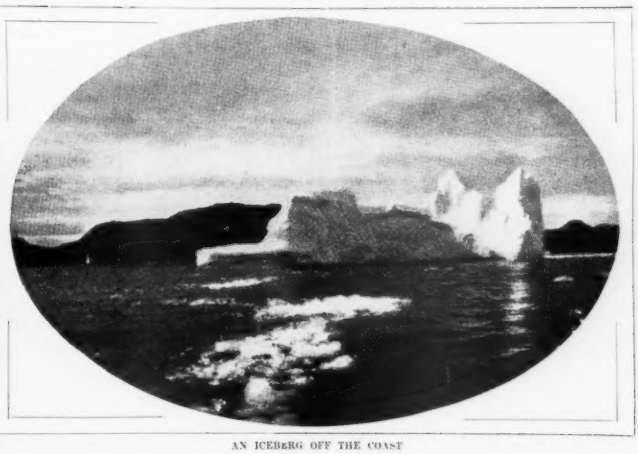
THE NORWAY OF THE NEW WORLD

AN AMERICAN WONDERLAND FOR THE PAINTER, SPORTSMAN, PLEASURE SEEKER AND CAPITALIST

Prepared for Our Day *by* CYRUS HOLDRIDGE

TOWERING ROCK AT ENTRANCE TO HARBOR

HUNTING DEER IN THE THICKETS



AN ICEBERG OFF THE COAST

Discovered by John Cabot in 1497
First English Colony planted in 1583
Restrictions on building up to 1820
Granted responsible government 1854
Geological survey made in 1864
First Copper mine opened in 1864
Cable connection with England in '66
Outside steam communication in 1873
First railway of 83 miles laid in 1884
Trans-insular railway completed in '98

I AM paying my first visit to Newfoundland, the great island lying opposite the Gulf of the St. Lawrence, six hours steamship ride from Sydney, Cape Breton. For four hundred years it was a mere fishing camp with scattered and temporary settlements of fisherfolk along the coasts. Today it is the home of a quarter of a million of hardy people engaged in fast multiplying industries with resources at hand for the maintaining of a large and intelligent population. As late as 1820 the few who made Newfoundland their abode were subject to annoying discriminations against them by the English government, owing to the attitude of the fisheries' monopoly. It was not until 1832 that England granted them representative government, and they did not secure responsible government until 1854. Ten years later a geological survey was made and the island found to be rich in natural wealth. Old prejudices have since passed away and today I find a thrifty and prosperous people.

It is only six hours steamship ride from Sydney, Cape Breton, to Port-aux-Basques, the southwestern point of the island and the terminus of the Newfoundland railway. This railway traverses the whole length of the island, inland, a distance of 548 miles to St. Johns, the capital. Since it was opened up to traffic in 1898 the internal development has been amazing and the growth of agricultural and other industries promise to surpass the fondest dreams of the government, for here land can be had almost for the asking, 30 cents per acre, and the later returns will justify early sacrifices.

The first sight of the coasts impresses the traveler unfavorably. It is what is termed "rock bound," or rather we might say it is a great wall of rock, now shooting up into peaks, now breaking into fissures, now presenting dark frowning cliffs, bold promontories, and headlands sculptured into grim fantastic forms by frost, storms, and blows of Atlantic billows. At intervals these rocky walls are cleft by deep bays running many miles inland, studded with verdant islands of all shapes and sizes, and often fringed by dark green forests. These great fiords, strikingly resembling those of Norway, are scenes of beauty such as are rarely surpassed in the most favored lands of the globe. On leaving the rugged coast-line we find the outer interior to be a hilly country with eminences of no great elevation. The inner interior is an elevated undulating plateau traversed here and there by ranges of low hills, the surface being diversified by valleys, woods, countless lakes and ponds, and numerous marshes, which are generally shallow and could be easily drained. A large part of the surface of the island is covered with these lakes and lakelets, abounding in trout and other fishes.

Until somewhat recently the prevalent idea was that the interior of the island was little better than the "Great Dismal Swamp," full of bogs, repulsive rocks, barren wastes, with here and there a few patches covered with a stunted forest growth, and the whole generally shrouded in a curtain of fog. Fifty years ago, such was the picture of the island as it presented itself to the mind of outsiders. Only within a recent period have these mistaken notions been dispelled and the reality made known. Now that the island has been opened up it is

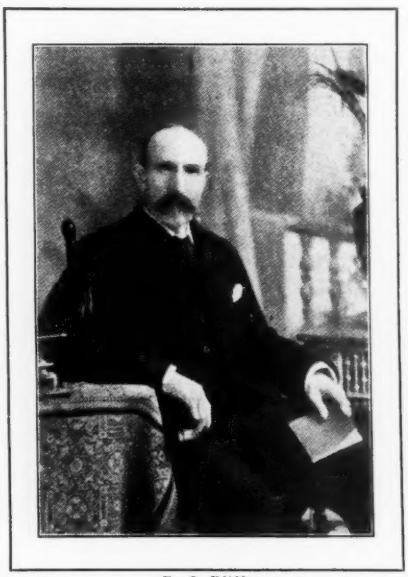
found that it contains large areas of fertile land, great forest growths along its valleys, noble mountain and hill ranges, and some of the most beautiful and enchanting scenery.

Newfoundland, like Norway, has a hort but beautiful summer, bright skies, exhilarating atmosphere, a quaint people abundant in insular peculiarities and primitive characteristics, hidden away in nooks remote from all the outer world, worthy of the study of inquiring travelers. Both countries are pierced by great watery ravines presenting scenes of rare beauty.

The fisheries of Newfoundland contitute the staple industry of the country. In recent years other industries have been introduced and will continue to expand; but by fishing the bulk of the people have still to earn their daily bread. The fishery product constitutes nearly four-fifths of the annual exports. Out of a population of 210,000, about 56,000 are engaged in catching and curing fish, and 12,000 in all other occupations. The mean annual value of the fishing exports, in recent years, has been about $6,600,000. To this, however, must be added the value of the fish consumed by the people in the country, estimated at $400,000, so that the average annual value of the fisheries of the country is about $7,000,000. The annual value of Norwegian fisheries is about the same as that of Newfoundland.

Cold water seas are essential to the life of the commercial food fishes. The cold current from the north which washes the coasts of Labrador, Newfoundland, Canada and part of the United States, chilling the atmosphere and bearing on its bosom huge ice-argosies, is the source of the vast fish-wealth which has been drawn on for ages and which promises to contiue for ages to come. Wanting this cold river in the ocean, the cod, seals, herring, mackerel, halibut, hake, and other kinds of fish, which now crowd the northern seas, would be entirely absent.

But this cold current also brings with it the food on which these fishes thrive, and which can never be exhausted. The ice-laden current from Baffin's Bay brings with it those forms of marine life, from the diatom to the minute crustacean, to the crab and prawn, together with the molluscous animals, and star-fish in profusion. The "slime-food," as it is called, sustains the minute crustaceans, and these, in turn, furnish food for the herring, which are abundant on the shores, in the bays, and especially on the great Banks. The herring, with multitudes of squid, caplin, etc., are devoured by the cod. When the cod is assimilated by man, the great circle of nature is complete.



R G. REID

Under the new and improved methods of curing and packing, the use of codfish is extending. The preparation known as "boneless codfish," in which, after the removal of bones, skin, etc., the fish is divided into strips and packed into neat boxes, has met with wide appreciation. A more recent method, and one that promises to secure a wide success, is that of removing all the bones of the dried codfish and grinding the fish into a fine meal which is put up in tin cases containing from one to three pounds each. Labels on the cases contain directions for cooking. The meal will keep in any climate and is easily cooked. It is most palatable and much more economical than the old method of preparing dried cod for the table.

Every portion of the codfish is now turned to economic account. The liver yields oil having valuable medicinal properties. The finest glue is made from the skin of the codfish, and from the bones and head a valuable fertilizer is produced.

The fertile lands for agricultural purposes lie in belts, and mainly along the vallys through which the principal rivers run, around the heads of the great bays, and the margins of the smaller treams. In the aggregate, these comprise a very fair proportion of the whole land area of the island. If we take the whole area to be 42,000 square miles, and deduct from this one-third for lake and ponds we have 28,000 square miles, of which fully a fourth or 7,000 square miles, or 4,480,000 acres are available more or less as arable land or for grazing purposes, and are capable of sustaining a large number of people. Less than 300,000 acres are now occupied.

The sportsman has a paradise in Newfoundland. Not only does he find the willow grouse, ptarmigan, curlew, plover, snipe, the large Arctic hare and the North American hare, but he also finds the noble caribou, or deer, in vast herds. The caribou, or reindeer, are finer than those of Norway or Lapland, being much larger and carrying much finer horns. Big stags have often been shot weighing from 500 to 600 pounds.

In minerals only a beginning has been made to learn the extent of the deposits. The discovery of copper ore was first made in 1857, at Tilt Cove, on the northeast coast. Within the last three or four years, iron ore of a superior quality has been discovered in very large quantities; and coal mines with seams aggregating in some cases twenty-seven feet in depth, have been opened, so that it is not unreasonable to believe that Newfoundland will yet become one of the great mining centres of the world. Asbestos, gold and silver and petroleum are among the late discoveries.

The Tilt Cove copper mine was not worked till 1864. In fifteen years it had yielded 50,000 tons of copper ore, valued at $1,572,154, and nickel ore worth $32,740. It is still worked, giving employment to over 500 miners, and shows no signs of exhaustion.

I have barely referred to the Newfoundland railway, but this is today doing more for the development of the country than anything else. To R. G. Reid, a prominent contractor of Montreal, belongs the credit of its final completion. Mr. Reid has been called the "Czar of Newfoundland" because of his large investment of capital in the railway and in the various industries. He is a Scot by birth and started life as a working stonemason. He came to America as a young man, and today is the biggest landowner in the world. The way in which he acquired so much land is a subject of general interest.

When Sir William Whiteway was Premier of the colony in 1878 he advocated the building of a railway and although he secured the passage of a bill favorable to the project nothing was done until 1885 when a branch line of twenty-seven miles was built and opened in 1888. At this point Mr. Reid came upon the scene. Under a contract signed on May 16, 1893, he contracted to build a railroad from St. Johns to Port-aux-Basques, 548 miles. For constructing and operating the line payment was to be at the rate of $15,600 per mile in debentures of the Government of Newfoundland, bearing interest at three and a half per cent. per annum. Under the operating contract there was to be a grant fee-simple to the contractor of 5,000 acres of land for each mile to be operated. Should the line be 500 miles in length the land grant would be 2,500,000 acres. These grants were to be taken in alternate sections on each side of the railway, the colony retaining the same quantity of land given to the contractor, also in alternate sections, so as to prevent anything having the appearance of a monopoly. The land grant was accepted by Mr. Reid instead of an annual subsidy in money in payment for operating the road during the first few years when the returns would be limited.

In 1898 the Government entered into a new contract with Mr. Reid, which was ratified by the Legislature, the bill being passed by an overwhelming majority. According to this new agreement Mr. Reid undertook to operate all the railways for fifty years, stringent conditions as to management, number of trains and rates being laid down. For the reversion of the railway at the end of fifty years Mr. Reid agreed to pay $1,000,000 within one year. In return for the operation of the railway he is to receive a further concession of land to the extent of 2,500 acres per mile, selected very much as before.

Further—Mr. Reid contracted with the Government to build and run seven steamers of a superior description—one in each of the large bays, so as to connect with the railway, and one to ply to Labrador in summer. A separate subsidy is given for the services of these steamers.

It will not be denied that the thrifty Scotchman made a good contract with the government of Newfoundland and that he will undoubtedly live to be immensely rich. As the largest landowner of the world, a land rich in natural resources, he controls enormous possibilities which every year will become more valuable.

TWO EXPEDITIONS TO SEEK THE MISSING LINK

THOSE who have long held that the evolution theory of Darwin would be substantiated, and that it would yet be possible to prove that far back in prehistoric ages man developed from the ape, will be interested in learning that an American millionaire is now providing funds for such a search. This missing link has been called the pithecanthropus, the half-man, half-ape creature necessary to fill the gap in the evolution chain. Two expeditions are planned, one an American the other German. George Vanderbilt is to defray the expenses of the American party, which will be led by David J. Walters of New Haven, Conn. The German party is being organized by Professor Ernest Haeckel, the eminent naturalist of Jena. Dr. Theodore N. Gill of the Smithsonian Institution, says the New York Sun, gives the following information concerning the aims and hopes of the promoters of these expeditions:

"Of course these expeditions hope to find only the fossil remains of Pithecanthropus," he said. "They are going to make their researches in Java, because it was there that Dr. Eugene Dubois, a Dutch army surgeon and paleontologist, recently found partial remains of what many naturalists believe to have been a creature intermediate between ape and man. Dubois made the discovery on the bank of the Bangawan, near Trinil, in the central part of the islands. The remains lay in a bed of rock thirteen or fifteen yards below the vegetable soil. They consisted of the upper portion of a skull, two molar teeth and a thigh bone. From the size of the skull it has been judged that the brain of the creature must have been greater than that of any ape yet found and too small for any human being, that is, in proportion to the size of the body as indicated by the other remains. The teeth have been pronounced similar to those of man in that they are hollow at the crown, yet like those of the ape in that they diverge at the roots. The thigh bone indicates that the creature walked in an upright position—in the posture of a man.

"The name pithecanthropus, which, from its Greek derivation, means ape-man, was first used in 1868 by Professor Haeckel. The full technical name now is pithecanthropus erectus, in other words, an ape man standing erect. Dubois found the pithecanthropus bones in earth deposits representing the tertiary age or geologic period. This fact indicates that the animal lived and died during that time, hundreds of thousands of years ago."

"How long was probably required for the complete change from ape to man?"

"Two thousand years was sufficient time, I should think. It is not probable that the civilization of which we learn from the earliest records could have been attained until after man had been on earth more than 100,000 years. The historic period goes back probably 5,000 or 6,000 years from the present."

"Was this change from ape to man probably taking place at various parts of the earth at the same time?"

"It probably occurred in one limited area. It was so gradual that it would have been impossible for one living during this time to determine which creature was ape and which was man. It was simply the result of an innate tendency to vary in a particular direction, a tendency which manifested itself in this single area. Conditions were favorable to the development. Advantages were furnished to the being with new attributes. Then there was the result that the race thus propagated rapidly spread over the neighboring lands in a comparatively short time, geographically speaking.

"We will suppose that back in these ages there was an ape, like the present chimpanzee, which exhibited superior intelligence and learned to fight with sticks or clubs rather than with tooth and nail. This new faculty he transmitted to his descendants, who developed shorter arms, more efficient for the new mode of warfare. Those having the shorter arms, therefore, survived and multiplied in the struggle for life. The canine teeth were less used and on this account became smaller and were reduced to a level with the others. The gaps between the teeth gradually closed as the jaws, used less for fighting, grew smaller. The muscles of the jaws, likewise, became reduced and the ridges which held them to the skull became less prominent. As this superior intelligence developed, the brain and its cavity grew larger. As the arms grew shorter the legs became more and more convenient for locomotion, and thus was the erect posture developed. The ape ancestor, of course, had no tail; hence that appendage was not a part of the pithecanthropus in any shape of his development."

"Do you believe Java to be the proper place to seek pithecanthropus? If you were to set out to find him would you go there first??"

"Were I to go out and look for pithecanthropus my only guide would be the knowledge of where probable specimens had been already found. I would go in their neighborhood.

"This area in which man was evolved from the ape I believe to have been in India, and I include Java under the general head of India. In the late tertiary of India there existed a genus ape to which the chimpanzee belonged. It is very possible that man was evolved from his stock. Although man's nearest relatives now living are the African chimpanzee and gorilla, that old ape of India was probably nearer the line of our ancestry than any of the African species. The latter were, in a geologic sense, probably late comers into Africa. It would be useless to seek pithecanthropus in Europe. Moreover, there was never a tribe of such creatures in America. Man had perfectly developed before he came to this continent. The first man in America was not very different from man as found here today. In the course of time everything varies, and man has undoubtedly varied in color and physique from his ancestral parents who came to America. The first man to reach our shores from Asia arrived ten or twenty thousand years ago, roughly guessing."

"Is it not barely possible that a live pithecanthropus may some time be found upon earth?"

"No. The evolution from ape to man is not now in progress as it used to be. The struggle for existence has crowded out all intermediate links between ape and man. The pithecanthropi which originally occupied the same ground with early man did not have the intelligence successfully to compete with him in the struggle for existence. But the ape proper continued to live in the regions hostile to man. Had they occupied territory necessary or favorable to man they would have long been out of existence, as they practically now are, except in limited parts of Africa and Borneo."

"Suppose the Vanderbilt and Haeckel expeditions were to find a live pithecanthropus; how would he look?"

"That would depend upon the stage of his transition. If representing an early stage he would be bow-legged and have short lower limbs and long upper limbs. If representing a later stage his legs would appear straighter and better developed; his arms almost as short as man's. He would have considerable hair on his body and between it would be seen his black skin. His cranium or brain cavity would be larger and deeper than that of the ape, but smaller and more shallow than that of man. His jaws would be more prominent than those of the most savage man, but less so than those of the ape, while the size of his teeth, the gaps between them and the ridges which hold the jaw muscles to the skull would likewise be less than in the ape and greater than in man. His nose would be bridgeless and would lie flat upon his face. His eyes would roll in large orbits. Over each eye he would probably have a prominence from which his low forehead would slope suddenly backward to form the beginning of a shallow semicircle."

"Do you think that these Pithecanthropus hunters in Java will be successful?"

"If there could be found in Java a few remains such as Dubois seems to have discovered there should be more in the neighborhood. The difficulty is that in these tropical regions animal remains soon disappear, and it is only under exceptional conditions that they are preserved. Yet there are in existence fossil skeletons millions of years old. It is quite possible that we may yet find remains representing all the conditions intermediate between ape and man. This may result from systematic search. It may be found that man lived in the time of the ancient ape whose remains have been found in India. It must be remembered that the chimpanzee, so nearly related to our ape ancestors, is still living."

"To be convinced that any of the remains found are those of a genuine Pithecanthropus what bones do you want to see brought back by the searchers?"

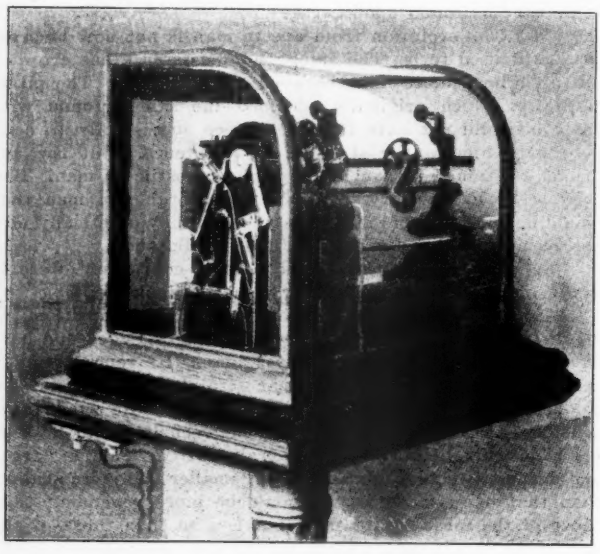
"Especially a good skull, a whole cranium, if possible. I would like to see the pelvis, also. The more bones the better,

of course. The trouble with the remains found by Dubois is that they are too few to guide one to a definite opinion. Other than the Dubois remains there has been none seriously considered as representing Pithecanthropus, none which scientific men could so consider with much reason. Remains found in the Neander Valley of Prussia in 1857 represented a creature with very low brain capacity. Yet he might have been either a savage or a philosopher. In other words, there is no definite ratio between mere size of brain and development of intellect. Of course you wouldn't find great intellectual development in the microcephalic or small-headed idiot. But normal men with small heads and brains often have very accurate and powerful intellects."

LATEST STEP IN TELEGRAPHY

THE development of the art of telegraphy has been marked by the production of some of the most ingenious machines to be found in the whole field of practical mechanics; and in no part of it has more well-applied inventive energy been displayed than in the direction of what might be broadly classified as telegraphic printing, or the automatic recording of messages by printing the same in the characters of the Roman alphabet.

Although the art of telegraphic printing had its beginning as long ago as the middle of the century, it is only during the past few years that successful attempts have been made to produce a true page-printing telegraph. The ingenious machine which forms the subject of the accompanying illustration is a very successful attempt on the part of John Burry, of the New York News Bureau, 16 Broad Street, New York, the inventor and manufacturer both of this machine and of the well-known



THE NEW MACHINE

ticker which bears his name, to substitute a true page-printing telegraph in place of the old ticker with its messages written upon a continuous tape.

The objects aimed at in this invention may be broadly summed up under the following three heads:

First: To produce a machine that would receive a telegraphic message and print it in the Roman alphabet, not, as in the old "ticker," in a continuous line upon an endless strip of tape, but in presentable page form, suitable for commercial or domestic use.

Second: To provide a machine which would be absolutely automatic, and, therefore, independent of both the sender and the receiver, thereby obviating all risk of clerical errors.

Third: To provide a system whereby a large number (several hundred, if so desired) of these machines could be operated at one and the same time by a single sender at the central station.

Broadly stated, according to the Scientific American, the system consists of a transmitting machine at the central station, from which, by the operating of a keyboard, certain electrical impulses are sent out, in the proper sequence and of the proper polarity, over two line wires, to any number of printing telegraphic machines. As each key of the transmitter is depressed at the transmitting station, electrical impulses are sent out through the circuits and act upon a series of magnets in each of the receiving instruments, the magnets serving to furnish the energy for the automatic movements of the machine.

The operation of the printing-telegraph, so far as its internal mechanical movements are concerned, is absolutely automatic, and hence, to all intents and purposes, the operator at the transmitting station, who may be some hundreds of miles distant from the printing telegraph, is able to print, without any possibility of error, a hundred different messages, in as many different and widely separated localities. We present a photographic view of the printing telegraph, as it appears when installed in a business office or any other place of use. It is mounted on an iron stand and inclosed in a glass case, as shown. As the roll of paper is printed it is delivered automatically at the back of the machine, and the printed matter may be cut off in pages of any desired length.

The printing done by this most ingenious little machine is remarkably even, and in its spacing and general typographical excellence it compares favorably with the best work that is turned out on the typewriter.

THE RELIGION OF JEFFERSON

THE desire of some of America's greatest statesmen to hide an expression of their religious sentiments did not always imply that they had no religion. However Christian people might have wished an open acknowledgment of their views, it can hardly be denied that their course avoided any possible union of church and state. The following are extracts from letters of Thomas Jefferson written to Charles Thompson, who was secretary of the constitutional convention, and are interesting principally from the fact that they dealt with Mr. Jefferson's religious views. These letters were brought to light only a short time ago by H. R. Looker, who read them before the Columbia Historical Society in Washington.

"I replied: 'Say nothing of my religion; it is known to myself and my God alone; its evidence before the world is to be sought in my life. If that has been honest and dutiful to society, the religion which has regulated it cannot be a bad one.'

"It is a singular anxiety that some people have that we should all think alike. Would the world be more beautiful were all our faces alike; were our tempers, our talents, our tastes, our forms, our wishes, aversions, and pursuits cast exactly in the same mold? If no varieties existed in the animal, vegetable or mineral creation, but all were strictly uniform, catholic, and orthodox, what a world of physical and moral monotony would it be! These are the absurdities into which those run who usurp the throne of God and dictate to Him what He should have done. May they, with all their metaphysical riddles, appear before that tribunal with as clean hands and hearts as you and I shall. There, suspended in the scales of eternal justice, faith and works will show their worth by their weight. God bless you and preserve you long in life and health.

"I, too, have made a wee little book from the same materials which I call the 'Philosophy of Jesus.' It is a paradigma of His doctrines, made by cutting the texts out of the book and arranging them on the pages of a blank book in a certain order of time or subject. A more beautiful or precious morsel of ethics I have never seen. It is a document in proof that I am a real Christian; that is to say, a disciple of the doctrines of Jesus, very different from the Platonists who call me infidel and themselves Christians and preachers of the gospel, while they draw all their characteristic dogmas from what its author never said or saw. They have compounded from the heathen mysteries a system beyond the comprehension of man, of which the Great Reformer of the vicious ethics and deism of the Jews, were He to return on earth, would not recognize one feature. If I had time I would add to my little book the Greek, Latin and French texts, in columns side by side, and I wish I could subjoin a translation of Gassendi's syntagma of the doctrines of Epicurus, which, notwithstanding the calumnies of the Stoics and caricatures of Cicero, is the most rational system remaining of the philosophy of the ancients, as frugal of vicious indulgence and fruitful of virtue as the hyperbolical extravagances of his rival sects."

UNCLE SAM'S EMPLOYES AT WASHINGTON

ACCORDING to the latest official list there are 19,446 public functionaries of various kinds and degrees of altitude employed exclusively in the District of Columbia in conducting the numerous departments and bureaus of the federal government. These are the civilian appointees only in the executive departments, and do not include Senators and Representatives and several hundred employes of the two houses who vibrate between the capital and their homes in the several states. Nor does this aggregate include 350 or 400 army and navy officers, active and retired, who form a large permanent colony here. The monthly compensation of these 19,446 civilian employes amounts to $1,635,708.81. Therefore, the aggregate sum in salaries annually paid out in Washington by the government disbursing clerks reaches the enormous total of $19,628,505.72. Besides, probably not less than $3,000,000 additional go to Senators and Congressmen and their highly paid subordinates, and perhaps $1,250,000 more to the army and navy officers, most of whom are of high rank with large pay, there being constantly in the city not less than sixty Generals and Admirals, active and retired. These totals form a grand aggregate of $23,878,505.72 annually paid here in the single item of salaries, a very pretty sum of money, indeed.

It is a vast, unvarying, constant stream of cash flowing from the government coffers into the hands of the banks, business houses and professional men of Washington, the official personnel of the United States acting merely as middle men, because this money is largely spent or permanently invested here. In all the departments salaries are paid semi-monthly regularly, and if desirable the office-holder can draw sums oftener if the money be due him, but this is dependent wholly on the courtesy of the disbursing clerks.

The following tabulation shows the total number of persons which each department employs within the District of Columbia, and their aggregate pay annually:

Department.	No. Employes.	Ag. Pay.
Treasury Department	4,881	$5,030,663 55
Department of the Interior	4,440	4,909,773 00
Government Printing Office	3,150	2,993,284 99
District government	3,026	2,168,959 00
War Department	1,787	2,006,547 00
Department of Agriculture	804	832,946 00
Post Office Department	697	779,580 00
Navy Department	324	382,392 18
Department of Justice	141	255,640 00
Department of Labor	101	134,780 00
Department of State	95	133,940 00
Totals	19,446	$19,628,505 72

Most of the departments have large numbers of additional officials in various parts of the country, the Engineer Bureau of the War Department, for instance, employing upward of 10,000 persons in the river and harbor work of the government. In respect of numbers it is the largest bureau in the government. One of the surprises of the foregoing exhibit is the comparatively limited force required here to conduct the affairs of the Post Office Department, with all its vast ramifications. The extraordinary numerical strength of the Interior Department, almost equally surprising, lies chiefly in the Pension Bureau, the land department and Patent Office, which necessarily require an enormous clerical force. The Bureau of Engraving and Printing, entirely distinct from the Government Printing House, alone employs nearly 2,000 people, which largely accounts for the numbers charged to the Treasury Department. The Government Printing House is one of the staggering features of officialdom, but it is one of the pets of Congress, which it chiefly serves. The admitted importance of the great State Department is not fairly reflected in its very meager official force at home, which is the smallest of all, even less than that of the Labor Bureau, whose functions are chiefly theoretical.

The tabulation develops the somewhat curious fact that the average pay of these 19,446 civilian employes, including Supreme Court Judges, Cabinet Officers, assistant secretaries, chiefs of bureaus, and hundreds of others with high salaries, is, after all, reduced to almost precisely $1,000 per annum, explained by the fact that the great majority are only modest subordinates, messengers, laborers, charwomen, etc., drawing in some cases only a few dollars per month.

In the selection of these executive officials there is a popular belief that the appointing power is governed by an unwritten law of equity, which compels a fair distribution of the prizes among the several states of the Union. One is therefore surprised to learn that the states of Maryland and Virginia, together with the District of Columbia, embosomed in their center, hold nearly one-half of all the executive places at the capital, the district alone being charged with greatly more than one-quarter of the total of 19,446 appointees. It is safe to say that of their 7,931 office-holders, at least 5,000 were born in the district and the two states. The total population of the territory from which this undue proportion of the country's office-holders is drawn is 3,322,848, less than half that of the single state of New York, and about the same as that of Missouri, which has here only 322 office-holders. A large proportion of the district's office-holders are the sons, daughters and relatives of old office-holders from other quarters and of army and navy officers. Thus whole families are known to be quartered upon the government. The distant states fare poorly, because their citizens have not time nor money to waste in prosecuting their claims so far away from home.

AN ASPHALT LAKE IN VENEZUELA

THE dispute between two rival American corporations over the possession of an asphalt lake in Venezuela has caused especial interest in what an asphalt lake is like and how asphalt is mined and shipped to market. Asphalt, or asphaltum, is the solid form of bitumen. Bitumen is a generic term which is applied to a variety of substances, ranging from natural gas, naphtha, petroleum and mineral tar to asphalt. The asphalts of different localities vary greatly in composition, as is shown by their chemical reactions. Nearly all are amorphous and have the general appearance of pitch, melting at about the temperature of boiling water. Asphalt, it is thought by scientists, has resulted from the hardening of the maltha and petroleum elements, through oxygenation and evaporation.

One of the most interesting asphalt beds in the world is the pitch lake in the State of Bermudez, Venezuela, which is described at length in The New York Tribune. This valuable deposit was unknown to American capitalists until 1888, when an American engineer, Ambrose Howard Carner, received a title to the property from the Venezuelan Government. This he sold to the New York and Bermudez Company, which is closely allied to the so-called Asphalt Trust, of which General F. V. Greene is president. The several square miles which are included in the concessions obtained have, in the last thirteen years, been steadily improved. The company has cleared the Maturin river to navigation, so that deep sea craft from all quarters of the globe can run in from the Caribbean Sea, past the British possessions of Trinidad Island, and inland to the docks of the company at Guanoco.

The town of Guanoco is the river terminus of the Bermudez company's railroad. Here are hundreds of native Venezuelans, working under the eye of an American superintendent. The raw asphalt is brought from the lake, five miles distant, on flat cars, and shovelled into the holds of the vessels. At Guanoco this operation is much simpler than at Trinidad, where lighters are necessary because of the long, shelving beach of the harbor. The railroad follows an old Indian trail which led from the river to the shores of the pitch lake. The surface of the lake is so hard that for some distance from the shore it supports the weight of a loaded train. As one looks over the surface of this great deposit he at first sees nothing of a striking or unusual nature. He views only a black plain, resembling anthracite coal, or flint, upon which are groups of natives working with picks and shovels. Closer examination, however, shows that portions of the surface are soft like tar, where the asphalt is sticky and bubbling. Asphalt is distinguishable from anthracite not only by its form, but because it is soluble in bisulphide of carbon and benzole. These pitch pools resemble somewhat the hot springs of the Yellowstone region. They slowly cool, and become hardened after many years. As at Trinidad, they vary in depth. Some of them have never been fully sounded, and are thought by the natives to extend into the bowels of the earth.

The asphalt which is mined at Bermudez Lake is more or

less hardened, and is obtained with some difficulty, as it retains the sun's heat to a trying degree.

The Bermudez company, after years of experiment, has succeeded in putting on the market asphalt which will neither crack from cold nor melt under the burning sun. About a decade ago vehicles were likely to cut into asphalt pavements in the summer months. By chemical treatment this has been obviated in all the newer pavements, even in hot countries, where it fully resists the sun's heat, and at the same time retains its durability and elasticity.

Asphalt is used largely in the manufacture of cements. It is mixed with a petroleum residue to render it plastic, and is then tempered with one-seventh its weight of sand. It also forms one of the most durable waterproof materials known. For roofing purposes it is mixed, while hot, with fine gravel, or is absorbed by thick rolls of felt paper.

Asphalt is found in many countries. In Vera Cruz, Mexico, near the village of Moloasan, is a mountain largely composed of asphalt. The deposits at Seyssel, France, and at Val de Travers, Switzerland, consist of limestone impregnated with bituminous matter, which, when heated, crumbles to a powder. After it has been pounded into moulds and is cooled, it resembles the original rock. Over one thousand miles of the streets of Paris have been supplied from these two localities.

FAST TRAINS AND THEIR RECORDS

WITH each new achievement in improved construction the question is raised by the general public, how much speed will this add to the fast trains? The fast run, of course, depends largely upon conditions of equipment, roadbed and trained efficiency of employes. There have been many runs in recent years which have been remarkable, not for the whirlwind speed acquired and maintained, but because of the fact they were made over long distances and without a moment's preparation in the way of getting the track clear and keeping it clear for an "extra."

Such a run was that of a Burlington train made in February, 1897, from Denver to Chicago. The entire distance of 1,025 miles was made at an average speed of 58.74 miles per hour, and the general superintendent had only sufficient notice to get the train made up before it started. Such a feat as this requires a force trained to a degree in discipline and promptness of action in cases of emergency. Another such a run was made when the Peacock special on the Santa Fe made the distance from Los Angeles, Cal., to Chicago, 2,665 miles, in fifty-seven hours and fifty-six minutes, and did it with hardly a moment's preparation. Five years ago such performances would have been declared impossible. What the speed that may be attained five years hence no railroad official would dare to prophesy.

The ninety-pound rail displacing the sixty-pound rail, locomotives of 135 tons weight steaming out of the roundhouses in place of those weighing seventy-five tons, better methods in roadbed construction, heavier equipment, modern automatic block signal devices, a higher degree of discipline in employes, and many other things have brought about the reduction of "magnificent distances" by the modern passenger train.

Regarding fast time, however, there are several popular errors of opinion. Those unfamiliar with railroading believe that for fast riding one must seek the so-called "limited" trains which run between far-distant cities in a shorter space of time than the regular passenger trains. In the main this is incorrect, and not infrequently the ride on one of the limited trains becomes tedious for its very slowness. It is the long pull and the steady pull which gets the limited over the ground for long distances faster than the "local" and while at times the limited makes remarkable bursts of speed the "local" beats it in this respect day in and day out.

Railroad officials can be found who will tell you that their line has trains which daily make a fraction over ninety miles per hour for short distances. Numerous instances are on record where trains have run between two and five miles at a rate of 100 miles per hour. A Burlington train in January, 1899, made the run from Siding to Arion, a distance of 2.4 miles, at the rate of 130 miles per hour. The time was caught the same by four stop watches, and the engineer would probably have weakened had he known what he was doing. The New York Central has a record of 103 and 112 miles per hour for the distance of one mile, but such speed is not attained every day. The public is probably more interested in what the railroads do daily in the way of regular traffic.

For long runs without a stop the palm is still conceded to the English railways. Taking runs of 100 miles and upward the British trains are ahead of their American and French competitors, but the rapid advancement which is being made in this country threatens that supremacy. Between Exeter and Paddington trains make three times daily a run of 194 miles without a stop and maintain a speed of 52.2 miles per hour. Between Euston and Crewe there are four trains daily which run 158 miles without a stop and at an average speed of 53.3 miles per hour.

The seven British routes aggregating twenty-five runs daily make 133½ miles or over without a stop. The French have two trains daily which make, between Paris and Calais, 185½ miles without a stop at a speed of fifty-three miles per hour. In the United States there are but three routes, with an aggregate of eleven runs daily, that make as high as 133½ miles without stopping. The longest run is made between New York and Troy, where three runs of 148 miles are made daily without a stop and at an average speed of 49.3 miles per hour. Between New York and Albany six trains daily run 143 miles at a speed of 53.5 miles per hour.

There is nothing in the old country that can compare with long runs without change that are made on this continent. The longest run in America without change is on the Canadian Pacific road between Montreal and Vancouver, a distance of 2,906 miles. The next longest run is on the Southern Pacific between New Orleans and San Francisco, a distance of 2,489 miles.

A NEW INDUSTRY FOR WOMEN

THE proud matron or maid who refuses to wear a pair of gloves twice, and the fastidious who do not care to have the slightly soiled or torn restored, have made it possible for lady experts to find a new calling whereby they are assured a certain and good income. Gloves are purchased by a number of small concerns in the larger cities which restore them to the best condition possible, and then sell them at prices much below regular rates. Nearly all of the operators are women, who seem to possess a more accurate eye and a defter touch than the other sex. One of these glovers, a bright woman of New York told of her work as follows in a recent interview:

"I have been in the business some time now, and while profits are small, they are certain, and enable me to do better than I could in any other trade I know of. I buy my goods from all kinds of stores, and often from private parties. There are many wealthy women in New York who buy expensive gloves by the wholesale, and who, in the hurry of a busy social career, often tear or rip a glove in putting it on. They throw them aside, and either they or their maids sell them to me for a reasonable price. My work varies with each pair of gloves. Where there is a tear or rip I employ the needle. Glove-sewing is a special branch of needlecraft, and must be learned carefully, like all other fine work.

"Besides the sewing there are buttons to be put on and buttonholes to be repaired. The stretching of gloves can never be remedied altogether, but it is possible, by a little manipulation, to take away the appearance of having been worn before, and give them the look of carelessly made goods. Women are very curious in these matters; they will turn up their nose at anything which is second-hand, but will pay a good price for something that is shopworn or even poorly made. With gloves that are spotted or soiled, the treatment is chemical and mechanical. Many forms of discoloration can be removed by benzine, chloroform, and carbon-sulphide. Others can be improved by steam and a hot iron, still others by burnishing upon a polished stone with a steel rubber or burnisher, and it is also possible to redye many gloves, the colors of which have been injured or mottled.

We have other little tricks of the trade, such as putting on additional embroidery in order to cover a bad spot or an unsightly scratch or break. Whenever you see a pair of gloves on a lady's hand with a large amount of handsome machine embroidery on the back, you can rest assured that they are generally misfit or discarded specimens, which have been restored by some one in our calling. Regular embroidery is fine and delicate. The kind I refer to is heavier, and covers a much larger amount of surface. The price is usually a fraction of the original price of the glove, and does not depend upon the labor involved in the reconstruction. On some gloves where little work is requisite, our profit is quite acceptable, but on others, where much has to be done, it is so small that it hardly pays."

TWO DISTINCT TYPES OF PEOPLE IN CHINA

SOME CHARACTERISTICS OBSERVED BY ZONIA BABER DURING MONTHS OF STUDY IN THE FLOWERY KINGDOM

RACIAL characteristics and environment have much to do with determining the distinct features of Chinese life as found in various parts of the empire.

Being isolated in some measure by mountains and deserts from other countries the natives have worked out a national characteristic, although the northern part of China is mostly populated by Manchurians, while the southern is largely by Chinese. The one is a larger race than the other, many individuals being six feet in height. The feet of the women are not bound. The women being of the same racial blood as the imperial household, the general estimation in which they hold themselves is not low. The Chinese to the south are of smaller stature, becoming notably inferior in size as they approach the Malay type. They are more intelligent, however, than their northern neighbors and far more cleanly in their habits. Their cities are better cared for and they show a better appreciation of the principles of living, with the exception that they bind the feet of the women.

Outside of the mountainous districts China is an exceedingly fertile country. The fine, rich, yellow soil of the loess found in the Northwest, the red earth to the south and the vast alluvial areas respond generously to the cultivation of the natives, who harvest large crops of rice, millet, clover and poppies. The only drawback is the lack of rain, which is general except in the southern portions, but this is in part overcome by extensive systems of irrigating ditches, which freshen the land except in times of excessive drought, when famines bring desolation throughout the country.

As a class the people are industrious, cultivating the fields in the primitive methods of their forefathers, and any innovations that curtail labor or economize help are bitterly opposed. The introduction of labor-saving devices is one cause of their hatred of "foreign devils." The advent of steamboats on the rivers has caused much bitter feeling, as it has driven hundreds out of the river-carrying trade and in many cases cheapened the price of products. Hongkong, which was seized by the English to pay the expenses of the war which forced opium, the curse of the nation, upon the people, is under English and not Chinese law, and hence often affords an asylum to criminals. Foreigners frequently strike Chinamen who are passing in the streets, with their canes, much as they would a dog, and all these irritations, together with the constant menace of Russia on the north, Japan on the east and England and Germany at every other point, make it not surprising that the foreigners are not held in high esteem.

Houses of China, whether of high or low degree, exhibit a similar design, showing that the celestials have followed the outlines of the tents of their nomadic forefathers. A variety of materials are employed in construction. In the Loess districts many of the poorer classes hollow caves from the earth, some having wood or brick fronts. Others build their homes of adobe or wood, with thatch or tile roofs, the corners of the roofs always being turned upward. Mud is often laid on like concrete, to form the walls and frequently a veneer of mud is placed over matting. The windows are divided into diamonds or squares filled with oiled Korean paper or shells ground down to the pearl, in place of glass, and the whole exteriors are frequently painted in black, gray, blue or red.

China, considering its latitude and altitude, is the coldest country in the world, and the provision made for heating is far from satisfactory to the visitor. Every house has a "kang," which is raised like a dais about a foot from the floor in one end of the room. Flues for heating run through this and the family sleeps on top. While the fire lasts the inmates roast, but later on they freeze. Among the wealthy every house is inclosed by a plain brick wall ten or twelve feet high. The house is screened by an inner wall and no two gates are placed opposite each other in order to provide secrecy and to prevent the entrance of devils, who can move only in straight lines. The buildings are often richly ornamented, the doors sometimes being made in the shapes of leaves or flowers.

River life is a characteristic feature of China. Boats of all shapes with every imaginable style and size of sails are constantly plying along the streams and canals. In every kind of labor, whether rowing, carrying or preparing their food, the people chant or howl, which especially makes a bedlam of the water courses. Although industrious, it seems to be a principle with them never to repair anything but rather to wait until it falls down and then rebuild it. This is true of the great or imperial canal that joins central and northern China. It is 700 miles long and 200 feet wide and was originally faced with carved stone work and spanned with many fine bridges, but during the ten centuries since it was built it has fallen sadly out of repair and no attempt is being made to arrest the decay.

The two great typical cities of China are Peking in the North and Canton in the South. Peking is Manchurian, and what especially impresses or rather depresses the visitor is the condition of the streets and the large and varied assortment of smells. There are no pavements in Peking, the sandy clay of the streets being raised in the center to accommodate carts and pedestrians, while the sides of the thoroughfares serve as dumping grounds for all manner of refuse. The houses are mostly one story in height and their arrangement and construction have become familiar to all readers of the newspapers during the last year.

Canton, the Chinese city to the south, is a great improvement on its northern rival. It also is a city of odors, strange and various, but in less degree than those of the imperial city. It is the only city in the tropics where snow falls at the sea level, but in summer the heat is intense. The streets in the old part of the city are only four to seven feet wide, while in the newer

The Trusts to Uncle Sam: You needn't go ahead. We've decided the canal shan't be built.

Uncle Sam: Well now, son, you just stand around here for a little while and see me lift those things with this can of powder.

—*Los Angeles Times.*

portions they attain to the magnificent proportions of from ten to fifteen feet in width. These streets are paved, however, which compensates for many evils. The paving consists of loose granite slabs laid crosswise, nine inches broad, six inches thick and long enough to reach from one side to the other. Beneath this, a drain runs down the middle of the street, and while it makes its presence felt in warm weather, it has the advantage of being easily taken care of, for if there is any stoppage, it is necessary only to raise successive slabs of the pavement until the seat of the difficulty is reached.

No carrying animals are ever seen in the streets of Canton, transportation being accomplished by human agency. Few of the houses are more than 20 feet high, except the pawnshops, which are square towers rising four or five stories high. They have no outside windows except near the top, and care is taken that no projections shall afford assistance to thieves.

Valuables are deposited for safe keeping in these institutions, and loans may be made on goods so stored.

A cheerful habit frequently indulged in is to hang under the eaves of the houses the name of the family doctor. It advertises the doctor and assists him in keeping tab on his patients. The notable achievements of the family are also aired frequently in this fashion, and in some instances shopkeepers mail their accounts to the doorposts, thus doing away with bookkeeping and statements of bills.

Most commonly the paper used for these proclamations is red, as this color is supposed to bring good fortune. It is a symbol of the peach tree, which, in Chinese mythology, is analogous to the tree of knowledge. Hence peach wood is largely used in the arts, and red paper is employed in making firecrackers, kites, lanterns and decorations, as it is supposed to be a preventive against disease—a sort of "spiritual chloride of lime."

ARTESIAN WELLS OF SOUTH DAKOTA

SCIENTISTS have acknowledged for years that the artesian wells of South Dakota stand unrivalled in the height of their pressure and the copiousness of their flow. Professor Todd, the state's geologist, has made an extended study of the subject and his conclusions will be generally accepted.

He says that the immediate source of the water in the different layers of sand or sandstone in the lower portions of the Cretaceous, which, with the intervening beds of clay, comprise the so-called Dakota formation. Below it, also, and not clearly distinguished from it, are similar beds belonging to the Jurassic age. From these two formations, and mainly from the first, all the larger and deeper wells of Dakota derive their supply. The water comes up often with an immense power, 175 to 200 pounds per square inch. It has not burst forth before, because from 400 to 1,000 feet of compact, heavy clay has been sufficient to hold it down. There are, nevertheless, a few places where natural breaks have occurred, as along the Missouri river, near Chamberlain, and probably near Yankton, and along the James river, in Hutchinson and Davison counties.

The Dakota formation resembles a huge shallow trough, extending indefinitely north and south, underlying the great plains. Its western edge, of very irregular form, lies exposed as foot-hills along the eastern base of the main chain of the Rocky Mountains. These exposures lie at an altitude of from 3,500 to 6,500 feet above the sea. The water is turned into the porus substance of the formation until the formation is nearly filled to the top of its western edge. Then when an opening is made at a point lower down, say 1,300 feet above the sea, as in the James river valley, the water bursts forth with immense force. This efficient and inexpensive power has been utilized for years for running feed and flouring-mills, and for fire-protection and electric lights of cities.

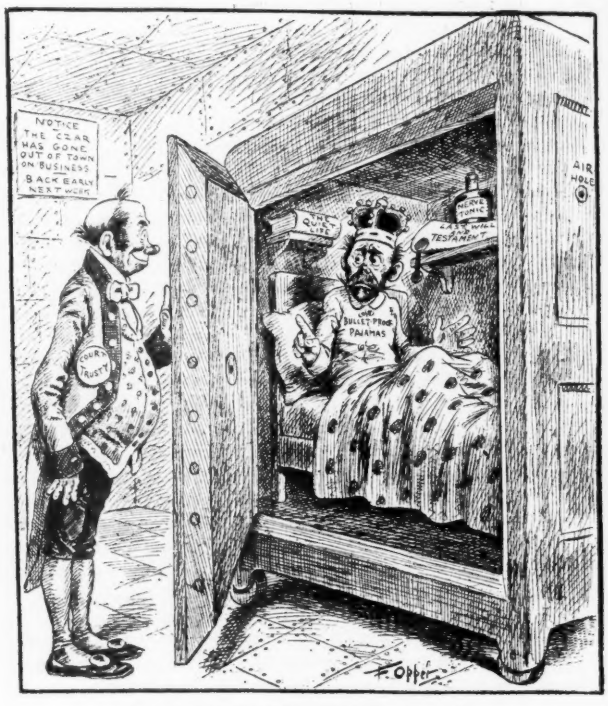
This water is supplied from three sources; first rain falling directly upon the exposed edge of the Dakota and Jurassic formations; second, water which seeps into these formations from streams flowing over such exposure; third, water which may pass into the formation from other formations below the surface, particularly from the underlying older formations.

Nebraska, Wyoming and Montana, as well as wide areas in the western part of the Dakotas, are too high to obtain driven-well water without expensive pumping. Iowa and Minnesota are not to any considerable extent underlaid by these water-bearing formations. The Dakota formation doubtless underlies Assiniboia and the Saskatchewan valley, though it may not be so much of a water-bearing formation as further south. Moreover, it lies deep there, and other supplies of water are readily accesible.

The exposed surface of the Dakota and Jurassic formations between the north line of Colorado and Canada is estimated to be at least 3,000 square miles. The average rainfall reported in that region is 24 inches per annum. The Missouri river is said to lose 834 cubic feet per second where it flows over the Dakota formation at Great Falls, Mont. There is a similar supply from the North Platte, the Big Horn, the Yellowstone, and the score or more of smaller streams around the Black Hills and the Big Horn Mountains.

These sources, to say nothing of the supply from other formations, would afford water sufficient to supply more than that at present derived from all the artesian wells in South Dakota.

The water-bearing strata lie from 200 to 1,000 feet below the surface. There are about 1,000 flowing wells in South Dakota, about forty of which furnish over 1,000 gallons per minute, and one eight inches in diameter furnishes over four times that amount. The great majority are two inches or less in diameter. Of such some townships have over thirty. The larger ones outside of towns are intended for irrigation and have produced excellent results. Physicians remark the fact



BED TIME IN THE WINTER PALACE

Attendant: "Good night, your majesty."
"Good night; Don't let any of those Nihilists find out the combination." —*New York Journal*

that sickness has greatly diminished wherever artesian waters have come into use. The waters contain ingredients valuable for enriching the soil. Phenomenal crops have been repeatedly obtained by their use.

THE MAGNITUDE OF TEXAS

THE Houston Post has been consulting the census returns and gathering some interesting statistics concerning Texas. We are informed, for instance, that there are not two other states in the Union which together contain as much territory as the Lone Star State, which has more ground than New York, New Jersey, Pennsylvania, Ohio, Illinois, Massachusetts and Wisconsin combined.

Here are some other combinations that tend to convey an idea of the greatness of Texas:

Six states the size of Pennsylvania could be carved from Texas and then there would be enough left to make a Connecticut.

South Carolina, with its hundreds of cotton mills, isn't equal in size to one-eight the area of Texas.

Massachusetts, teeming with factories and with a population seven-eighths that of Texas, is not equal to the size of the largest county in the Lone Star State.

Little Rhode Island, with 400 people to every square mile, would easily fit in any of forty different counties in Texas.

Connecticut, Delaware, Rhode Island and the District of Columbia could all be placed in El Paso County, which has an area of 9,353 square miles.

Pecos County would hold the Hawaiian Islands, and there would be 1,863 square miles left to form another county larger than Rhode Island.

El Paso, Pecos and Brewster counties combined would more than cover the states of Massachusetts, New Hampshire and Connecticut.

Texas is larger than Germany, or France, or Spain, and it contains almost as many square miles of territory as England, Scotland, Ireland, Wales and Japan all together.

PARK ANIMALS AND THEIR TREATMENT

[Lincoln Park of Chicago enjoys an international reputation for its animals, which have been brought together from all points of the compass. The study of their conditions of life has become a science in itself. Their surroundings, because of their money value, is receiving more attention from those in authority than the welfare of millions of human beings cooped up in cities from the city departments of government.]

A LARGE portion of Chicago's population is like the beasts of the field which have moved into apartments in Lincoln Park. Being out of their natural conditions and with a restricted amount of exercise, their vitality is reduced and they become easy victims to the many forms of bacilli which are on the lookout for favorable conditions of conquest. Whether coming from the jungle or the farm, the free, untrammeled life in the open air has been replaced by cages or flat buildings and offices, according as the animal is brute or human, and the results are much the same in both instances. While the home is the highest symbol of civilization, the house itself is the direct cause of the spread of tuberculosis. It is a house disease, which is well-nigh universal in city life.

Medical science, however, is for the monkey, as well as for man, and at the present time old methods of housing and feeding that have been in vogue for years among animal-keepers are giving away to new ideas that are bearing fruit in better health, longer life and a greater certainty of rearing the young than heretofore.

About three years ago the Lincoln Park commissioners, realizing that something must be done to lessen the death rate among the valuable animals, decided to make a thorough investigation of the causes of the trouble. The investigation lasted many months, but almost from the outset the changes instituted by the park authorities began to show results.

Animals in confinement are subject to three principal forms of disease. These are rickets, tuberculosis and lumpy jaw. Regarding the first, it is a notable fact that animals in the wild state are seldom, if ever, afflicted with the malady. It is a disease of nutriment, caused by bad feeding, lack of sunlight and poor ventilation, and shows itself chiefly in bony deformities. The animal afflicted assumes the method of locomotion common among those who drink too much whisky. The young rarely reach maturity.

Regarding the food, it is a fact well known to hunters when an animal in the wild state seizes its prey it first drinks the blood and then devours the organs. The lean meat is eaten last, if at all. For some reason it has long been the custom in zoological gardens to prepare the food by bleeding the animal and carefully removing all the fat. In this way the animals are deprived of the fats and starches, and receive only the salts and other matter. Hence the first step adopted by the park board was to copy nature. Careful attention has been given to the sanitary conditions. Cages were constructed so as to admit plenty of air and sunlight, and the result has been that today the park has got lions to burn. It is a fact that more young lions have been raised during the last three years than during the ten years previous.

When McKinley reached maturity it was found that he had a bad case of rickets. This was a great disappointment, as it was supposed he was on a sound basis. He was mated with Flora, and their first litter of African lion cubs died. The second litter was little more than 1 year old, having been raised under the old regime, when the cubs began to show signs of rickets. The park superintendent immediately got a flock of sheep and fed them to the animals whole, and today a healthier family circle cannot be found. Flora's mother, Nellie, after losing several of her children, has since raised thirteen young lions without a single death from rickets. Mollie, the puma, or mountain lioness, has succeeded in raising only one cub out of twelve litters, but it is expected that the next family will be successfully reared. What is true of lions has been true of all the carnivorous animals, such as the tigers, wolves, foxes, etc. Herbivorous animals, or such as eat no meat, rarely have the disease, as they have a more balanced ration, and thus receive all necessary elements of food.

Another form of disease is tuberculosis, which is found on the average in one out of every eight people. In Chicago it occurs in one out of every nine, while in Europe the ratio is as one to five. What is true of men is true of animals in captivity, and especially where they are confined in houses. Animals in the wild state seldom if ever are afflicted, and it was rare among the Indians. The monkeys that accompany the organ grinders are far healthier and live longer than those that are confined in warm houses.

The park authorities are doing all in their power to place the animals as near as possible to their natural conditions in order to combat this disease. In place of the glass cage in which the monkeys were confined a few years ago, surrounded by a temperature of more than 70 degrees, an outdoor cage gives them plenty of air, sunshine and activity in the summer time, while their winter quarters are well cared for and ventilated. The same is true of the other tropical animals, every precaution being taken to provide the lions and tigers with all possible health. Mrs. Snyder, the beautiful Bengal tiger; old Leo, the African king, and innumerable monkeys have succumbed to the ravages of the disease.

The third menace of the physical well-being of the "zoo" is lumpy jaw, which is a bacterial disease. It causes a swelling of the bones of the face and produces big bony masses on the jaw. The chief cause of death from the disease is due to the bacteria poisoning, which permeates the system with fatal results. It also attacks the organs, as in the case of a deer which died recently.

Another curious element in the disease which helped to put an end to the days of a deer was a quantity of grain which collected in a cavity caused by the swelling of the jaw and became fermented, acting as a poison. This disease has been killing deer for twenty years, but the cause has not been detected. Within the last six weeks one adult and two young deer have died in the park, but the evil spirit has been exorcised and it is believed that no further trouble will be experienced.

The disease is not very contagious and is easily controlled. The houses where animals subject to the disease live have been thoroughly whitewashed and treated with lime and the animals given iodide of potassium. At present the animals of the park have a much firmer grip on life than ever before, and while some must die in the course of nature or because of accidents, it is believed that under the present regime of intelligent and scientific treatment little difficulty will be experienced in future in preserving the animals in health and in successfully rearing their young.

HAWAII EMULATING NEW ZEALAND

NEW ZEALAND has long been called the experiment station of the world, where political theories have been worked out to greater perfection than anywhere else. But if present indications prove correct Hawaii will shortly take the lead in solving some problems which are still in an unsettled state in the favored colony of Great Britain. The present Hawaiian legislature—the first under American rule—seems likely to incorporate in the laws of Hawaii single tax, proportional representation, the Government liquor-dispensary system, municipal charters made after the models of Municipal-Charter Leagues, and supposed to represent the best theories yet developed, and a law rigidly quarantining the whole Territory against consumptives and all other persons afflicted with contagious or infectious diseases. Under the guidance of a few intelligent leaders of rather socialistic tendencies they have united upon some of the most prominent of the many millennium-bringing reforms that are being discussed in America today. The result of the deliberations of such a body, with its leaven of white men strongly opposed to the more radical schemes, but in a minority, is an interesting subject to the whole country, while in Honolulu it is a matter of absorbing concern.

The single-tax system would revolutionize taxation throughout the islands, as it would in any other American community. It would throw almost the whole burden of taxation on the sugar interests. On every island of the Hawaiian group nearly all the cultivable land is owned by sugar plantations. A single plantation on one island covers 30,000 acres. In Hawaii sugar interests are paramount. They dominate all commerce. The passage of a single-tax law would be a unique example of a legislature opposing capital united as capital is united in few if any other places in the world—and this by legislators of a race whose past history in such affairs fairly

reeks with palpable briberies. At the start, however, there are grave doubts about the passage of single tax.

The Dispensary Law appears almost sure to pass. There is a very good authority for the statement that it is approved by Gov. Dole. Its adherents claim that they can pass it over a veto if necessary. The system proposed is that of South Carolina with some modifications. Liquor is to be sold only at Government stores or dispensaries, in sealed packages, which may not be opened where sold; the contents are not to be drunk in any public place; the dispensaries are not to supply the same man twice in one day, and are not to sell to habitual drunkards at all, and, finally, the location of dispensaries is to be a matter of local option—the Territory is to be divided into districts, each of which shall decide by vote whether it wants a dispensary or not, and the question can be raised for special balloting at any time.

MILLING INDUSTRY OF ARGENTINA

THE growth of the wheat fields of Argentina have within recent years become a disturbing factor in the price of the product throughout the world. With a large crop in Argentina the exports from the United States have difficulty in finding a desirable market, and the price of the cereal is sent down

"SEEIN' THINGS AT NIGHT" —*Chicago Tribune*

to bedrock all around the globe. Since wheat raising became of such importance in the South American Republic, there has been a rapid extension of the milling industry in that country. B. W. Snow writing of this to The Chicago Record says:

The importance of domestic milling may be judged by the fact that during the last year it disposed of some 700,000 tons of wheat, while the exports reached only 2,000,000 tons, or, in other words, fully one-fourth of the crop now passes through the grinding rolls of the mills of the country. There is now a milling capacity for even a larger proportion. In fact, statistics presented by the government in 1895 indicated a grinding capacity for nearly 2,000,000 tons, but this is undoubtedly very much exaggerated.

The amount of flour consumed in the country is usually estimated at about 167 pounds per capita, or the equivalent of 4.25 bushels of wheat, and the flour exports should equal 3,000,000 bushels of grain in a good season, thus disposing through the mills of the country of some 23,000,000 bushels a year out of a crop that only equals 100,000,000 bushels in years of exceptional abundance. This consumption does not depend upon the foreign demand for wheat, but is superior to it, in that it must be met first, whether the crop be large or small, so that Europe can only get the surplus after local millers have had sufficient for their needs.

Brazil is the natural market for Argentine mills, and it is there that nearly the whole exports are sent. Very little has reached or can reach Europe on account of distance and danger to the product in crossing the equator. The flour produced is all sold in bags, both local and export, and the use of barrels would be both difficult and expensive. Taking advantage of this impossibility of packing Argentine flour in barrels the American diplomatic and consular representatives in Brazil have engineered a shrewd move in that country. While the Argentine people and government three months ago were entertaining the president and high officers of Brazil, with a view to closer political and commercial relations between the two countries, United States Minister Bryan convinced the government of that country that flour should not be packed in bags, and to discourage the custom a heavy differential duty has been placed upon flour coming into Brazil in bags. As the United States miller has plenty of lumber and coopers he will naturally pack in barrels, but his Argentine competitor has no such facilities, so the discrimination means the ousting of the latter from his natural market.

The effort of American millers to capture the Brazil market is bitterly resented. The overshadowing importance of the United States as a customer for Brazilian articles of export furnishes a strong lever with which to secure special favors for our goods, a fact which millers here are not slow to appreciate. In a fair field the market would be theirs, but with the chance of being ousted they are looking for other fields, and have determined to make an effort for the South African trade. Here they have the advantage of distance and no crossing the equator, together with a certainty of an equal commercial opportunity. It will be well for American trade to recognize the probability of a new competitor in that quarter of the earth.

THE BANANA AS A NATURAL FOOD

MOST authorities are agreed that the banana is a nutritious food, having less water and more nitrogenous matter than is commonly found in fresh fruits. It has been cultivated in India and China from remote ages, and its nutritive properties are well known there. In many localities it forms the chief alimentary support of the people. It is considered the poor man's ideal food, for when baked, meat may be dispensed with. This fact will enhance their food value in the minds of all who disapprove of a meat diet as well as recommend the fruit to all who have an object in economizing in the household expenses.

Many of our valuable wild fruits, such as the strawberry and orange, have through process of grafting or forced seedlings, or cross-fertilizing, so changed their natural composition as to be valuable only for their flavor and not for the purpose originally intended. The banana, fig, and date are true examples of natural unchanged fruits and are the same simple wild fruits today as when they formed the staple articles of food of those noted wise men of the east.

Bananas should not be eaten raw unless you know that they are fully ripened and thus predigested. When sufficiently ripe to be eaten raw they have almost reached the point of souring and the skins are quite dark. When the skin is simply yellow it should not be used unless cooked and never given to children in that condition as they cannot digest them. Where the banana is grown, the natives always cook them as they consider them full of disease germs. It is said one reason why so many of our soldiers serving in Cuba and the Philippines are sickened is because they indulge too freely in these fruits in their raw state. Some consider that the fruit purchased in our northern markets is not wholesome because it is brought here in a green state and ripened artificially. This can be no good objection as both the banana and bread fruit are frequently gathered by the natives before fully ripened and buried in covered pits made for this purpose and allowed to ripen in that way.

There are many varieties of the plantain; the true banana is a small variety of such delicate structure it will not bear transportation, so is never shipped to our markets. This is the truly edible kind that is thought suitable to be eaten raw by the natives. What we know as the banana is the larger variety of plaintain which they would not think of eating uncooked.

THE PERILOUS TREND TOWARD AN EMPIRE

By Ex-GOVERNOR GEORGE S. BOUTWELL

EX-GOV. BOUTWELL, of Massachusetts, delivered an address before a great audience in Faneuil Hall on March 30, protesting against the present attitude of the administration towards Porto Rico, Cuba and the Philippines. In the course of that address he said:

Our duty and our course of action are not changed by the seizure of Aguinaldo. We are here to make our protest against the policy of empire in America. This the duty that rests upon us, and this duty must continue until a final judgment shall have been rendered by the American people.

From republicans very largely and from clergymen very generally I am met with the statement that it was a mistake, or an error, or a misfortune that Dewey did not leave the bay of Manila when the Spanish fleet had been destroyed, coupled with the ejaculation, "But we are there, and what are we to do?" The question, "What are we to do?" is answered by the declaration of those who ask the question and who declare that the delay of Dewey was an error, or a mistake or a public misfortune.

What is the teaching of the pulpit in regard to other wrongs and sins? Does it tolerate and advise continuance in the wrong until the sinner can escape from his entanglements without admitting his sins? If it was an error for Dewey to remain at Manila, when he had no knowledge that allies were to be betrayed; when he had no knowledge that 10,000,000 friendly natives were to be converted into earnest and vindictive enemies; when he could not have foreseen war, and that at the end of three years of war the only fruits would be desolated homes, stricken families, deserted fields and barren acres; how much more ample and conclusive are the reasons for the abandonment of Manila when the betrayal of our allies has been followed by the loss of 10,000,000 friends; when two years of war and massacre have made peace through war impossible; when the augmentation of military forces is not followed by military successes; when the invading army is besieged and held in check by those whom it invades and seeks to oppress, and when proffers of friendship and peace have been rejected with menaces and threats? And by whom? Not by Dewey, but by the president of the United States. On him the sole responsibility rests.

Do you expect me to advance a step and to indicate the motive under which the president is acting? May there come a president with an overleaping ambition who will not be satisfied to see his name in the list and in rank with Polk and Pierce and Buchanan and Hayes? Even Johnson may be an historical personage when those whom I have mentioned shall be neglected or shall have been forgotten utterly.

The president who can seize a republic of a century of 75,000,000 strong, born to an inheritance of freedom, of great principles in self-government, illustrated by worthy examples, and can build an empire on foundations so laid with possibilities not attained by Rome nor possessed by Britain will have gained a place in history as permanent as that occupied by Washington, and such a president is already assured of the approval of no inconsiderable portion of mankind.

If you press me for a more definite answer to the question, What motive? I ask you this question as my answer: What vision of the future led Napoleon to carry the eagles of France under the "burning suns of Egypt and amid the wintry storms of Russia" and concealed from his eye the dismal outlook from the mid-ocean island of St. Helena? An inquiry into the motives of the president may have more interest for the historian than for us.

That we have dealt unjustly with the Indians, that the emancipated negroes are not in full enjoyment of their rights as American citizens, that women do not possess the right to vote, cannot justify our attempt to compel millions of human beings to submit unconditionally to our rule. The example of our own wrong-doings cannot be pleaded in justification of greater wrongs which we ourselves are committing.

I shall not continue the inquiry whether we are more or less a world power than we were in 1897, but of this I am assured: In 1897 we were a republic and in 1901 we are an empire. Mark the steps by which the change has been wrought. First in point of time we annexed Hawaii, a country that had been seized by a minority. In the system that we have there set up we have disfranchised a large body of those who had theretofore participated in the government, and we have made the possession of property a condition of holding office. Thus have we trampled down the doctrine of popular government and denied the equality of men.

We have secured from England and Germany exclusive jurisdiction of islands in the Samoan group, where we are engaged in keeping the peace by the presence of a naval force.

Porto Rico has been annexed unconditionally. In that island we have a civil government that has been created by the order of the president.

In disregard of our pledge of freedom and sovereignty to Cuba we are imposing on that island conditions of colonial vassalage.

Finally Congress has given the president full power to govern Cuba, Porto Rico and the Philippines, and in none of these vast possessions can the people appeal either to the constitution or the laws of the United States.

Has power more unlimited been exercised by any despot in any age or country? We may not as yet doubt the disposition of the country to do what is right, but in these facts there is ground for denying to President McKinley the purpose to do what is right. The question is not as the president would have the country believe, whether we can conquer the Philippine islands, the question is not whether we have power to make Cuba a vassal state, the question is this: Are we justified in the attempt to do either?

It is a boast of the president's inaugural address that we have become a world power and that we are taking a part in the affairs of the world; and boastfully he asks this question: Are we to shrink in the presence of the great duty to which we are called? In 1897 we were respected in all countries. We were not hated by the powerful states of the world nor feared by the weaker ones. Taxation was moderate, and the maximum of the army was only one-fourth of what it now is. The president says we are at peace with all the world, but the army and the navy are on a war footing and the support of the army and navy has added 25 or 30 per cent. to our taxes.

No one can state an account current between the people of the United States and this war.

A few items on the debit side may be named:—

Increased expenditures, $500,000,000.

Increased taxation in a like sum.

A heavy pension roll that will run for half a century.

A loss of many thousand American citizens, who fell in battle or died in hospitals.

Other thousands who have been sent home insane or otherwise diseased.

Finally, the brutalizing of all who have participated in the war in the Philippines.

The administration can only file in setoff this altruistic proposition: We intend to carry to these people better ideas of life, better institutions of government, a better religion, whenever they shall be prepared to receive these great gifts submissively at our hands. For this end, an end manifestly uncertain, improbable, indeed, in the highest degree, the American people are sacrificing blood and treasure and the good name of the republic throughout the world.

Shall the policy of President McKinley be continued? Or shall it be abandoned and a policy of power through peace and justice be substituted for a policy of empire through war, conquest and the enslavement of mankind?

PREDICTS DEFEAT FOR GREAT BRITAIN

JAN KRIGE, Gen. Botha's commandant of field police, who escaped from Lorenzo Marques three months ago on a German ship and came to America, in a recent interview, said this of the South African war:

Great Britain's cause in South Africa is utterly hopeless. If with 250,000 troops in the Transvaal and Orange Free State for six months she could not subdue 12,000 Boers, what effect are 30,000 additional troops going to have now that the Boers have as allies 15,000 Cape Colonists, fresh and well armed and equipped?

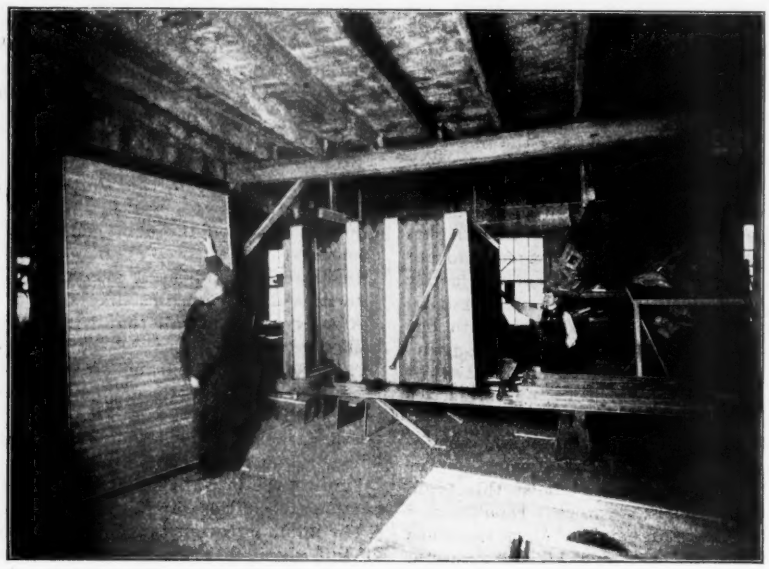
The big problem now for the Boers is how to cross the Orange river. If Gen. Dewet can cross this stream with 2,000 troops he will have 50,000 by the time he is within 100 miles of Cape Town.

King Edward VII. has a great opportunity. He should remove Chamberlain and the Rhodes ring, who started the war and who will keep it going. It killed the queen, and if continued will kill the empire.

The WORLD'S LARGEST CAMERA

AND WHAT LED UP TO ITS CONSTRUCTION

AMERICAN ingenuity has successfully devised a camera which takes the largest photographs on a single plate ever taken in the world. This achievement belongs to the credit of the Chicago and Alton Railway company. The plate on which these enormous and yet perfect photographs are taken measures 8x4½ feet.



The builder of the Camera, showing comparative height of plateholder

The story of what led up to the building of such a camera is a story of American enterprise and enthusiasm. Just at the time when the Paris exposition authorities were looking for attractions the Chicago and Alton company had had completed at the Pullman Works two trains of six cars each, of an unusual pattern and excellence. Since it was impossible to display such a train at the Exposition, it was decided to have a photograph taken which would properly call attention to its merits.

The company's photographer, Mr. Geo. R. Lawrence, at first thought it would be necessary to photograph the train in sections, and these sections fitted together during the process of printing, an ordinary method which, however, does not preserve, the absolute truthfulness of perspective, and, indeed shows the joints no matter how carefully the different sections are blended together. After further thought, designs were made which would meet the exigency so that a faultless photograph could be taken on a single plate, 8x4½ feet, three times as large as the largest plate ever before exposed. Mr. Lawrence was given a free hand by the company and spent two and a half months in the construction. A description of this mammoth camera, the largest in the world, and how the various problems of photography were met will be of general interest. It is finished throughout in natural cherry, and at the top of the back part of the camera is a small track upon which two focusing screens are moved back and forth like a sliding door. These focusing screens are made of semi-transparent celluloid stretched across the frames. The bed, which is composed of four 2x6 inch cherry beams, is about twenty feet long when fully extended. The camera has double swing front and back.

The bellows is made of an outside covering of heavy rubber, each fold being stiffened by a piece of veneered whitewood one-fourtn of an inch thick, it is then lined inside by a heavy black canvas and an additional lining of thin black opaque material, thereby making it doubly light proof. In the construction of this mammoth bellows over forty gallons of cement, two bolts of wide rubber cloth, and five hundred feet of one-fourth inch whitewood were used. The bellows is divided into four sections and between each section is a supporting frame mounted on small wheels, which run on a steel track; the back, supporting the plateholder, being operated as easily as an ordinary camera.

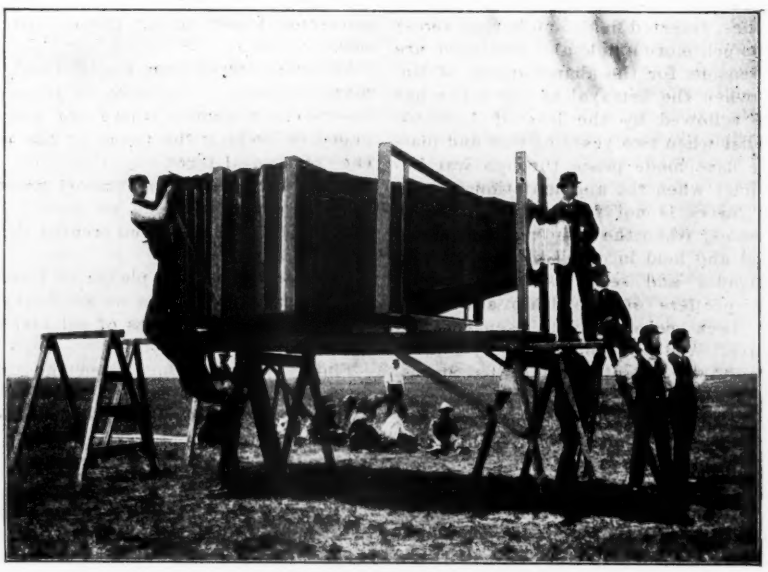
The plateholder is of the roller-curtain type. This curtain contains about eighty square feet of ash three-eights inch thick, and is lined with three thicknesses of light-proof material. Over ten gallons of cement were used in the construction of this curtain, and it is mounted on a ball-bearing roller. Ball bearing rollers are also mounted every two inches in the grooves in which the edge of curtain slides, thereby reducing the friction to almost nothing.

The weight of the camera is 900 pounds and the plateholder when loaded weighs 500, making a total weight of 1,400 pounds.

In operation the camera is so constructed that after a long journey the plate may be dusted in a very unique manner. The holder is put in position, the large front board, or front door as it may be called, is swung open, the operator passes inside with a camel's hair duster, the door is then closed and a ruby glass cap placed over the lens, the curtain slide is drawn and the operator dusts the plate in a portable dark room, after which the slide is closed and he passes out in the same way as he entered.

The lenses, which are of the Carl Zeiss patent, were ground at great expense and trouble. They are the largest photographic lenses ever made, one being a wide angle lens five and a half feet equivalent focus and the other being a telescopic rectilinear lens of ten feet equivalent focus, the latter being used.

The day on which the photograph was taken was clear but a high wind was blowing, notwithstanding which, after an exposure of two and one-half minutes, on a full Cramer Isochromatic Plate (this special plate being used to preserve the color value of the train), a perfect negative was secured. The services of no less than fifteen men were required in properly handling the big instrument.



Taking the picture

A COLONY WHERE THE FRUIT DIET PREVAILS

THE FRUITARIAN THEORY AND MANNER OF LIFE AMONG ITS ADVOCATES

IN a country like the United States there is not a fad or ism which is not represented. California is notably a state for health fads of every description. Among others is the fruitarian theory of diet. This differs essentially from that of the vegetarians. The vegetarians make much of the wholemeal bread, whereas the fruitarians avoid bread altogether, claiming that it stiffens the joints, hardens the arteries and brings on premature old age. They say that bread, instead of being the staff of life, is rather the "staff of death." The late Joseph Medill, editor of the Chicago Tribune, held to this idea. They eat no vegetables, except salads and tomatoes, and make their meals entirely of fruit and nuts, to which some of those who are not so strict occasionally add a little cream cheese, or something of that kind.

A fruitarian colony of eleven people living on an eight-acre orchard near Fruitvale, in Alameda county, was recently described at length by a special correspondent of the San Francisco Chronicle, who interviewed the members of the colony in their homes.

"I've run the whole gamut of food fads," said Mr. Smith. "Then about five years ago I hit on this, and it didn't take long for me to realize that at last I was on the road healthward. My sister and my sister-in-law, Mrs. Ross, gradually became converted to our ideas, and they and the children joined our table for good. Mrs. Gale adopted the fruitarian diet for her son's sake; he had always been in delicate health. Now we're able to measure muscle with a beef-eater, aren't we, Jim?"

In answer Jim Gale swung a heavy sack of apples over his shoulder and started for the cellar door.

"Three years ago he could hardly lift his own feet," put in Mrs. Gale, a sweet, motherly woman, with rosy cheeks that defy her gray locks.

Of a truth, though, neither of the men look like "beef-eaters." Their skin has that peculiar transparency common among babies, and their eyes are milder and clearer than the average woman's. Both men are above medium height, yet they would undoubtedly tip the scales under weight. However, there is not a little work to be done on a carefully-cultured eight-acre orchard, and these two men, except during the cherry-picking season, practically do all the labor. So what better proof that their diet furnishes them sufficient nourishment? According to Prof. Jaffa, the dietary expert of the University of California, all diet laws must be adjusted to suit the needs of the individual. So the mere fact that two men do their work on a fruitarian diet might not prove much when the multitude is considered.

"We were all living in Chicago when we became fruitarians," explained Mr. Smith. "My wife and I had long cherished the hope of making our home in California. After we had adopted this manner of living, our desire grew stronger. California is the ideal place for the fruitarian to live—fruit is always in season, and there are so many varieties. My sister, Miss Smith, who lives with us, held out for some time against fruitarianism, but she was finally reconciled to it, and when she saw how it agreed with her, she became an enthusiast.

"At first we hesitated about making our two children confine themselves strictly to fruit and nuts. But gradually we eliminated other articles from their diet, and found that they were much healthier on a pure fruitarian system. My boy is 10 years old, and the little girl 7, and for the last three years they have lived strictly according to fruitarian principles. During this time they have never had any of the fevers, colds and other childish ailments that afflict most youngsters.

"It was a year ago last New Year's eve that we all decided to cast our lots together in Fruitvale. An old friend of the family, who had owned this place, was visiting Chicago and as he was anxious to get rid of it we bought it for a very fair price. We are fruitarians, and communists as well."

The spirit of communism not only rules the grown-ups in this queer little colony, but it is instilled in the children. They are taught the nice distinctions between "mine" and "thine," but are encouraged to share their playthings with each other. All the children have their "chores" to do, each according to his age, and the punishment for neglect fits the crime. Miss Smith who is a Vassar graduate, teaches them three hours a day, and, although they are of all ages and sizes, ranging from thirteen-year-old Edith Ross to little Claire Smith, just "half-past seven," she manages to put them through their mental paces very successfully. On pleasant days the schoolroom is under a spreading oak, where there are none of the discomforts of the usual bare, badly ventilated schoolroom.

Mrs. Ross and Mrs. Gale share the housework. Under ordinary conditions two women would have their hands full keeping house and cooking for a family of eleven. But under a fruitarian regime the work is reduced to a minimum. They have none of the woes and worries of the conventional housekeeper. In fact, save for heating purposes, a stove plays practically no part in the culinary make-up of this household. Now and then it is used for roasting nuts or baking bananas and apples, but not even on Sundays or holidays is a hot bird or juicy roast tolerated in this fruitarian kitchen. Here is the menu of their Christmas dinner:

Apples and California walnuts.
Banana bread and pignolias.
Tomato salad.
Oranges and pecans.
Almonds and raisins.
Fruit ambrosia.

These strict fruitarians eschew all vegetables, save lettuce and tomatoes, which they consume in large quantities when in season. Despite the fact that they have a fair-sized vegetable garden, no other vegetable ever finds its way to their own table—they are raised for the market. There is a chicken yard, with scores of well-tended chickens. But no fluffy little spring chicken is ever sacrificed for the broiler in this fruitarian farm. Not even the eggs are tolerated as food. Mrs. Smith who looks after the chickens, raises them solely for their market value. The two sleek Jersey cows are kept for the same purpose—to furnish butter for the market, not their own menus.

Naturally these people use large quantities of nuts, some of which they import. Walnuts, pecans, almonds, peanuts and chestnuts are the principal ones used. Besides the oil furnished the system by these nuts, sweet oil is used in abundance on salad. The adults consume about three large teacups of nuts a day and the children in proportion.

Here are the menus for one day in this fruitarian colony—they serve as a fair sample of the daily meals:

BREAKFAST.

Nut coffee.
Peanut paste,
Baked apples,
Oranges.

LUNCHEON.

Lettuce salad,
Bananas,
Walnuts,
Raisins,
Apples.

DINNER.

Lettuce and tomatoes,
Apple sauce,
Banana bread,
Pecans,
Almonds,
Baked chestnuts.

As just stated, the quantity of nuts consumed at a meal amounts to a cupful for each person. No stated amount of fruit is consumed, though at this season of the year, for instance, the grown-ups eat about twelve apples, five bananas and five oranges. When the small berries are in season they make a grateful change.

Naturally the cost of living is greatly reduced, owing to the fact that the fruitarians raise most of their food themselves. Buying in bulk and importing the nuts as they do, the cost of the nuts amount to about $20 a month for the eleven people.

Altogether this fruitarian colony is as happy and healthy a band of people as one could find. Their bright eyes and rosy complexions bespeak robust health. Their hair is particularly beautiful. And despite the vagaries in their diet, they are as perfectly poised mentally as physically.

NOTABLE UTTERANCES of OUR DAY

HOW IMPROVE THE CONSULAR SERVICE

HON. CHARLES DENBY, a former minister to China, recently expressed his views relative to the consular service of the United States and offered some excellent suggestions for its improvement, especially in the far east. In part he said:

We have extra territorial jurisdiction in China, Siam, Korea, Turkey, Persia, Zanzibar, Tonga, Samoa and Maskat. We exercise jurisdiction, also, over sixty-four islands in the Pacific ocean, commonly called Guano Islands. By extra territorial jurisdiction is meant that the countries named have agreed that they will exercise no jurisdiction, either civil or criminal, over our citizens, but that the American consuls may exclusively hear and determine all cases affecting them. In 1860 Congress passed a law conferring upon our Consuls such jurisdiction.

In the countries named our consuls are clothed with all the functions of courts of law. The American can be sued nowhere in those countries except in his own consular court. Civil causes of great importance are often brought in this tribunal. In China alone there have been four murder cases tried in the Court of the Consul General at Shanghai. From these statements it must be apparent that great care should be taken in selecting consuls for positions in the East, and the far East.

In China some provision should be made for the education in the Chinese language, consular duties and law of a corps of students. The system of Great Britain in that regard may well be copied. She maintains at Pekin a corps of students, who remain there under instruction three years. When the course is completed they are sent to the consulates to act as clerks. From time to time they are promoted until they become full consuls. They serve nowhere but in China. They are stationed during their service in all parts of the Empire. They speak the language perfectly, and they know the Chinese better than any other class, unless it be the missionaries. Their reports on Chinese trade are of inestimable value. As the result of their labors, in part, the foreign population of China is two-thirds British, and the trade of England is nearly ninety per cent. of the entire volume of trade.

Our consular system is complicated. We have consul generals, consuls, consular agents, and commercial agents, and to each of these officers there may be subordinate officers, such as vice-consuls, etc. We have also thirteen consular clerks who receive $1200 per annum. The design in appointing these clerks was to prepare them to become consuls, and originally it was intended to give them consulships as fast as vacancies occurred, but the scheme utterly fell through. The consular clerk knew that if he was appointed a consul he would in all probability hold the office only three or four years, and he preferred a life job at $1200 to a slightly higher salary for a year or two. The consular clerk should be compelled to accept a consulship, if one is offered to him, so as to make way for a new recruit who should, in his turn, learn the business. If this is not done the class should be abolished and its place supplied by the students to whom I have alluded.

I regard the chief desideratum in the effort to improve the consular service to be the making it permanent—particularly in the far East.

PLANT NEW FORESTS ON GOVERNMENT WASTES

THE approach of Arbor Day will lend additional interest to a carefully prepared paper on "The Outlook for the World's Timber Supply," which was read not long ago by Dr. W. Schlich before the Society of Arts in London and reported by the London Times. While this paper is devoted largely to the interests of the British empire there are serious suggestions conveyed to the United States which has permitted its wealth of forest property to be recklessly destroyed by those careless of the country's future.

The first part of the paper was occupied with statistical details on the export and import of timber in the various countries of the world. As regards Europe, Dr. Schlich reached the conclusion that the present deficiency of 2,620,000 tons was sure to increase, because the European sources of supply were not likely to meet the additional 600,000 required annually; personally he would not be surprised if ten years hence the deficiency amounted to three or four times the present quantity. Of the importing non-European countries, taken all together, there was no doubt the net imports would increase as time went on. Of the exporting countries, the regions around the Caribbean sea exported mahogany and other furniture woods, but they also imported so much lumber that their net exports were only 13,000 tons a year. The west coast of Africa exported various hard woods, but they were so expensive that they hardly affected the question. British India could do no more than send some teak and furniture woods. In Asiatic Russia, even supposing there was a surplus of production for export, the cost of transport would be practically prohibitive. The timbers of central Africa were not of the sort required in Europe in large quantities, apart from cost of transport, and in South America matters were in a similar position. It would not be possible, he felt sure, for the United States to meet, for any length of time, the increased demand which they had supplied for the last few years. Their present annual production, estimated at 75,000,000 tons, was exceeded by the present annual consumption by 33 per cent., and this meant that they consumed annually not only the legitimate growth or increment, but also a portion of their capital. Fortunately the seriousness of the position had been recognized and efforts were being made to introduce more conservative lumbering and to protect the forests against ravages by fire and grazing. As to Canada, it had not responded to the extra requirements of Europe, and he doubted whether it would be able to do so in the future, unless decided steps were taken at once to start thorough protection and a systematic management on selected areas, or, as they might be called, reserved state forests.

There should be no difficulty in permanently reserving 100 million acres, and if half the annual revenue—£700,000—derived from Canadian forests were devoted to that purpose substantial progress could at once be made to secure, not only the present, but an increased output for any length of time, leading ultimately to a revenue tenfold, or more, the present amount, and securing a permanent supply of coniferous and other timber for the world. In the second part of his paper Dr. Schlich drew attention to a few lessons that might be learned as regards the British empire as a whole and these islands in particular. With all the forest wealth of the colonies, we imported into the empire timber valued at nearly £18,000,000 every year, and the sum lately had risen at the rate of £771,000 annually. Surely the time had come for a more vigorous forest policy on sensible lines throughout the empire. Systematic forest management should be introduced, more particularly into Canada and Australasia, and above all, let the self-governing colonies consider a little more seriously that hitherto the magnificent example set by India. But we should begin by putting our own house in order. The imports of timber into the United Kingdom in 1899 were valued at £25,000,000, and of late years they had increased at the rate of 332,000 tons, £919,000 annually. Eighty-seven per cent. of the total consisted of pine and fir. Yet we had sufficient, and more, surplus land at home to produce all this timber without putting a single acre out of cultivation. There were 12,000,000 acres of waste land and 13,000,000 acres of mountain and heath land from which to choose the necessary six or seven millions, and surely £25,000,000 going out of the country every year was money enough to take some trouble about.

PREDICTS PROFITS OF STEEL COMBINE

JOHN W. GATES, the retiring chairman of the American Steel and Wire Company, predicts enormous earnings for the new steel combine. He said:

By maintaining present prices and operating on an economical basis I think the company will earn from $100,000,000 to $125,000,000 a year. I see no reason why the company cannot pay the interest on its bonds, the dividend on its preferred stock, and 6 per cent. on the common stock from the start. The earnings of the various companies were something over $100,000,000 per annum—I believe last year they were $110,000,000—but by operating from an economical standpoint more will be made.

The new company will pay good wages, he continued. It will employ 250,000 men and the pay roll will be over $2,000,000 a day. The company owns 20,000 coke ovens and has between 90 and 95 per cent. of all the old range iron ores. It has from two-thirds to three-quarters of the blast furnace capacity of the United States, and fully three-quarters to seven-eighths of the open hearth and Bessemer steel capacity. It has a large percentage of lake vessels—112 in all, most of them modern,

FILIPINOS AND SOME OF THEIR CUSTOMS

SOME facts of considerable interest were brought out recently by special correspondence to the Washington Star relative to the daily home life and customs of the Filipinos.

It seems that the Filipinos, like the Chinese, are rice eaters, and it forms the principal dish at all meals. They eat with their fingers, which is not very pleasing to witness. They all have knives and forks in the house, which they produce when visitors are present. Like the Chinese, they are also fond of fatty foods. The writer says: I have on a number of occasions witnessed young ladies eating large pieces of fat that caused me to have fears for my own stomach and I would be compelled to turn my head away.

I am of the belief that the longer an American studies the Filipino character the more complex it becomes. For thirteen months I studied them under many conditions, and when I left the islands I was under the impression that I knew but very little of the Filipino and his ways when not under observation. They do not understand themselves and do not care to, apparently. In the city of Manila many native jargons are spoken and they cannot understand each other. Every province has its jargon, and were it not for their limited knowledge of Spanish they would be unable to carry on a conversation.

Nine out of ten children have revolting sores on their bodies, generally on their legs, which leads one to believe that leprosy and other blood diseases are common among the natives. The most interesting sights of Manila I found to be the native markets. I would rise about 5 in the morning, and after a cold shower bath would start for a brisk walk through the

Uncle Sam wins the allegiance of Aguinaldo.
Chicago Record-Herald

native section of Binondo, which includes the largest market in the city. During my sojourn in the city I took probably a hundred of these rambles alone and never met an American, with the exception of a soldier, occasionally on guard.

This market was destroyed by the great fires started by the insurgents in February, 1899. Just as soon as the heat permitted, the dealers opened up for business among the ruins, making a startling picture. The products of the markets are not tempting to Americans, who do not patronize them except for fruits, eggs, chickens and one or two vegetables common to America. They have their fish alive in tubs, but I would not advise anybody to buy them, as their flesh has a sickening taste. This is due to the water being always warm.

The Filipinos try to be very clean in their person and clothing. I believe that they all take at least one bath a week, although I could not see how they derived much benefit, as they used only cold water and seldom any soap. The dirty Pasig river is lined every morning with bathers of both sexes. The laundry women are also out in force, and it is a sight to see them beat the clothes into cleanliness. They use a flat club as remorselessly on a fine shirt as they would on a pair of overalls. All clothes look alike to them. For nearly a year we were at the mercy of these clothes finishers, but now the city has several steam laundries which do first-class work.

The Filipino women are noted for their luxuriant hair. I would not call it beautiful, being too coarse. They soak a certain bark in a small bowl and saturate their hair with the solution. They told me they owed their beautiful tresses to this preparation. I would consider the Filipinos as fanatics on religion, as they all attend church, many of them daily. Sundays the streets are packed with church-goers. I do not think they grasp the true idea of religion, but they must be given credit for their efforts. I could not understand how any spiritual benefit could be derived from the teachings of the Philippine friars. These priests, with few exceptions, had the most cruel expressions I have ever beheld on the face of man. Their hardened faces did not portray any evidence of intellect, as they moped along with downcast look. They reminded me of Italian railroad laborers. When the first expedition landed in Cavite, Aguinaldo had a large number of priests confined in the dungeons there, and when crowded out of the city he took them with him. I have often wondered what their fate has been. The large cathedrals of Manila are open day and night, and always packed with natives paying their devotions.

I regard the Filipinos a very moral people when it is considered what a hard road they have had to travel. A faithless wife is seldom heard of, and I was told such faithlessness was punishable by death. They have some sort of secret society which acts on such cases.

Marriages with Americans is not countenanced by the Filipinos, and the few who have taken the step have been ostracised by their people. The first American soldier to take unto himself a native wife was a hospital corps man, stationed at Cavite. He or she made an unwise selection, as the alliance proved to be a total failure and they soon separated.

The native women are the most graceful walkers that I have ever seen. They carry their heads as proud as any queen. This grace is inherited and practiced from babyhood. It is an interesting sight to see a mother going to church accompanied by several little girls, all dressed alike, and walking in the same step and with the same graceful carriage. They wear no tight shoes and many none at all. This peculiar gait has been largely acquired by carrying weights on their heads, at which they are exceptionally adept.

HEADS OF FAMOUS PUBLIC MEN

THE shape and size of the skull may and may not give a correct idea of a person's character. Phrenology is not yet a correct science, although a careful reader of character can tell quite accurately a man's disposition and strongest qualities by his face and general bearing. It is, however, an interesting study and especially so in the case of public men. A prominent hat dealer of Washington, who has had business relations with most of the great men of the past thirty or forty years, has a "conformer" which takes the outline of the head and permits the shaping of the chapeau according to the bumps of genius—or other bumps. The conformer registers the lines of cranial development in miniature on a card which is filed away in a book and from which future shapings can be made. The dealer has preserved hundreds of these outlines and some of them make interesting subjects, for the student of phrenology.

Abraham Lincoln's outline is the one most valued by the hat dealer. The great war president had a head which was wonderfully well formed. It was an almost perfect oval, leaving out of consideration a slight waviness of outline due to the "bumps," which are found accentuated to a greater or less degree on every head. From the shape of Lincoln's head a phrenologist would infer firmness, caution, and the family virtues, with reasoning power predominant. His hat size was 7¼. Stanton, Lincoln's great secretary of war, had a long head, but it was neither as broad nor as symmetrical as Lincoln's, though the hat he wore was ⅛ of a size larger. On the left side of his cranial diagram, there is a perceptible flattening and on the right side at the rear, a curious degression. Phrenologically considered, the most striking characteristic is firmness. Grant's head was singularly shapely,

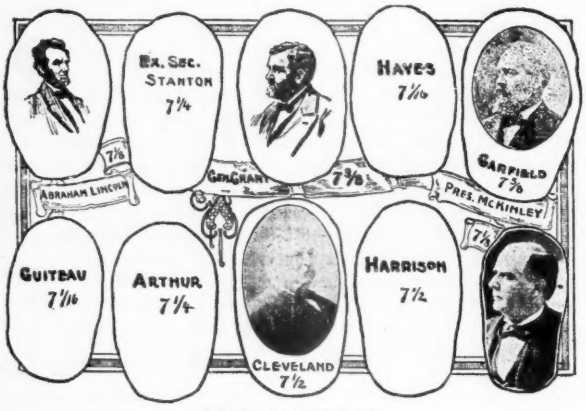
even, and unusually large, calling for a 7⅜ hat. Its contour denotes firmness and reason. The lines of President Hayes' head are symmetrical, but the forehead line is unusually flat. His hat size was 7 1-16.

It took a very big hat to fit Garfield, 7⅝ being his size. The head is long and broad, but uneven, one side being much flatter than the other. The splendid frontal width is a noticeable characteristic. One might expect of Guiteau, Garfield's assassin, that his cranial contour should show some marked eccentricity, but this is not the case. But for a flattening on one side, which does not attain an abnormal degree, the head would be uncommonly well shaped. The size is 7 1-16.

President Arthur had a splendid head and its contour seems consistent with the character of the even tempered, polished man of the world, with cultivated mind, that he was. He wore a 7¼ hat.

Firmness, approaching obstinacy, and aggressiveness are obvious in the phrenological design of President Cleveland's head. It is a very long head, fairly broad, and the most evenly modeled of any in the collection. The hat size is 7½. There is a striking similiarity in the diagram of the heads of President Cleveland and President Harrison, the more striking in that no person who had seen the two men would judge their heads to be at all of the same shape. The hat size is the same in both cases, and the heads are so similar in the rear half that if one diagram is placed over the other, the lines nearly coincide, up to a point above the middle of the ears. Forward from this point Harrison's head shows a decided depression that is not apparent in Cleveland's, and again, there is a slight bulging at the temples of the Republican which is absent in the Democratic cranium.

President McKinley's cranial outline does him scant justice, for the breadth of his forehead is below the line of his



CRANIAL DIAGRAMS

7⅛ hat. His diagram makes the front of the head look narrow and pinched. Benevolence, reason and caution are his chief phrenological characteristics. This is a salient difference between the heads of James G. Blaine and Thomas B. Reed. Blaine's is long and even; Reed's broad and "bullet," with plenty of brain space in the rear and a decided sharpening toward the forehead. Blaine wore the largest hat—7⅜ to Reed's 7¼.

The biggest official head in Washington at the present time is that of John D. Long, secretary of the navy, and nothing smaller than a 7¾ hat will suitably cover it. It is broad throughout and bulges remarkably near the back. Rear Admiral Schley's diagram furnishes a contrast to it, as marked as that between the characters and mental processes of the two men. His outline calls for a 7 hat, and one of very even, oval shape. Another very even outline, but lengthened out larger than that of Admiral Schley, is John Sherman's 7⅛ diagram. That of his brother, Gen. W. T. Sherman, is of the same size, but is considerably broader back of the temples.

Two clerical cranial outlines are those of T. Dewitt Talmage and Bishop Newman, each 7⅛ in size, and each decidedly sharpened toward the front, the slope of Talmage's head being more abrupt. Greatest of all the heads in the collection except Secretary Long's and broader even than that, is that of Carl Schurz, who wears a 7½ hat so abnormally broad behind the ears, that each new one has to be stretched to the verge of disruption in shaping it. On the other hand, the smallest head design of a grown man known to the dealer is that of H. Ascano, who wears a 6½ hat. Mr. Ascano is a Japanese who has been in the diplomatic service and whatever else his hat size may imply, it does not imply a corresponding smallness of brain, as he is one of the keenest and ablest of the many keen and able Orientals who have borne their part in Washington's official life.

As marked as the difference in the hat shapes of the various men, is the difference in their way of selecting their head gear. Lincoln, it is said, was careless and preoccupied in his selection. Grant was careful, as was also Hayes. Garfield was particular and once complained that his hats looked too big. Arthur was also very particular about the appearance of his hat, but was easy to suit because of the regularity of his head. Cleveland insisted on having his head gear comfortable, and was not readily soothed by the stock assertion that it would "shape itself after a little wear." Harrison, though scrupulously neat in his attire at all points, wouldn't spend much time over his selections. President McKinley is deliberate, patient and courteous in his hat dealing.

MRS. HEARD'S BRIGHT IDEA

IN the states of Virginia, North and South Carolina, Georgia, Florida, and Alabama, traversed by the Seaboard Air Line railway, Mrs. Eugene Heard, an enterprising lady of Middleton, Ga., has established a traveling library system for the benefit of not only railroad people but of the rural communities along the route. At every little station there is a library and the ladies in charge find in these outlying districts scores of people eager to read but unable to purchase books to gratify this inclination. They report cases of young men walking three miles for books, of tottering old men who want to read every book in the case before it is returned.

Andrew Carnegie heard of the scheme, and without solicitation, sent Mrs. Heard $1,000, so his name was given to the system. In three years the library has reached the number of 2,500 volumes, and the enterprise is now meeting with such generous support that it is proposed greatly to enlarge the system so as to include the rural schools in the vicinity of the railway. In January of this year Mr. Carnegie sent Mrs. Heard another $1,000.

The Seaboard railway carries the libraries from station to station, exchanging them for others when the books have been read. By its hearty encouragement of the plan it has won the gratitude of the farming communities, so that several important suits for damages against the railway have not been prosecuted because the "Seaboard is a corporation with a soul," and is doing all it can to educate the people along its lines. The secretary of the Farmers' institute hopes to induce the express companies of Illinois to pursue a like course in regard to his traveling libraries.

HOW THE COINAGE IS TESTED

EVERY year the President appoints a commission to visit the mints of the United States and test the weights and measures used at the Mint, as well as testing specimens of the coinage to determine if the standard of weight, fineness and finish have been lived up to during the preceding year. According to law, there is deposited in a strong box called the pyx at the Philadelphia Mint one coin out of each 1,000 or fractional part thereof of gold coins turned out in each batch coined at any of the mints and one coin out of each 2,000 silver coins. The Commission selects at random from the pyx a number of coins, that are then assayed by the Assayer at the Mint. At the end of the sitting of the Commission, which lasts about three days, a written report on the results is made to Washington, but it is rarely that there is any fault to be found with the workings of the mint in these respects.

VALUE OF AGRICULTURAL PRODUCTS

THE statistician of the United States Agricultural Department shows the total value of the light staple products of the farm—corn, wheat, hay, oats, potatoes, barley, rye, and buckwheat—in 1900 was $1,861,466,582. The average prices of all the eight crops at the end of 1900 were higher than at the end of 1899. Thus the corn crop of last year although but little larger than that of the preceding year, was worth $112,000,000 more.

MEDICAL EXPERTS ON EVERY DAY TOPICS

FANGOTHERAPY

MEDICAL science is interesting itself just at present with discoveries being made by its eminent leaders in "fangotherapy," or the treatment of certain diseased conditions by the use of a peculiar slime or mud found in Italy, "fango" being Italian for slime. Dr. W. C. Hollopeter, Professor of Pediatrics in the Medico-Chirurgical College at Philadelphia, read a paper recently on the subject which was carefully reported by the Public Ledger. Dr. Hollopeter said his attention was called to the subject by one of his patients, who, returning from Italy, mentioned in the most enthusiastic terms the curative virtues of fango, which is derived from the little lakes near Battaglia. At a subsequent visit to Italy the patient was so impressed with the unusual healing powers that he brought a large quantity of fango to this country, and Dr. Hollopeter said that for a year and more he had been watching the merits and defects of fangotherapy on some of his chronic sufferers. Fango is a grayish brown material, smooth as putty, with no distinctive odor, and to the skin is as soft as velvet. Chemical analysis shows that it is rich in iron, argillaceous herbs, magnesia, lime and alkalis united to phosphates, sulphuric acid and carbonic acid gas. This slime, which is believed to be volcanic in origin, does not undergo deterioration by removal from its birthplace, nor does it apparently lose any of its healing powers. Fango is used only once, not as a bath, but laid in direct layers on the affected parts. It can be easily removed with tepid water. It is an especially bad conductor of heat, keeping its artificial warmth for a long time, which is very important in certain conditions.

In using fango Dr. Hollopeter said an entire covering of the body is practicable, but in most cases local applications suffice. A warm blanket, he said, should be placed on the bed, and upon this a piece of waterproof cloth. The hot fango is spread on the part where the suffering is apparent to the thickness of three centimetres. In a case of sciatica, or of gout of the lower limbs the leg is covered with fango up to the hip. In rheumatism of the upper extremities the shoulder and the arm are enveloped. After the application of fango the patient is well covered with blankets in order to retain the heat and produce perspiration. The patient may, according to circumstances, remain thus covered for one-half to one hour. Afterwards the patient is divested of his wrappings, takes a lukewarm bath and cleanses himself of the fango; this is followed by a refreshing douche, after which the patient should rest for about an hour before going into the open air.

In speaking of the therapeutical uses of fango, Dr. Hollopeter said it has the mechanical effect of a warm compress, which, as is well known, is a valuable anodyne. This effect is evidently due to cutaneous irritation, adhesions of the fango working as a sort of massage to the ailing part. There is a dilation of the vascular system and stronger current of blood to the suffering parts; the quickened circulation takes place in consequence of the strong excretion of perspiration.

In Italy, he said, all chronic diseases are treated with mud or moor baths, but certainly in serious heart or kidney diseases the hot mud should be used with great caution. Among the cases in which fango is especially useful, he said, are diseases of the muscular system, sub-acute or chronic articular rheumatism, rheumatoid arthritis, chronic gout, localized neuralgias of all kinds, especially of traumatic and rheumatic origin, paralyses, sciatica, traumatic or chronic exudates and neurasthenia.

INSECTS AS CONVEYERS OF INFECTION

THE Medical Record has been making investigations in regard to the most important recent discoveries concerning the transmission of infectious diseases.

With regard to the propagation of malaria by the agency of a species of mosquito, the theory to that effect has received striking and conclusive confirmation, and is now accepted almost universally. The statement made some considerable time ago that yellow fever is spread in a similar manner by another species of the same gnat tribe, which would appear to have been further strengthened by the result of the recent experiments in Manila of Drs. Reed, Carrol, and others, may perhaps soon be also accepted as proven. Flies—even before the Spanish-American War—had been under suspicion as carriers of infection, and especially as conveyers of the germs of typhoid fever.

Dr. L. O. Howard, of the United States Board of Agriculture, who has just published a paper on the subject, pertinently points out that in all the literature dealing with the question there has been no discrimination made between the different varieties of insects concerned. The word "flies" is used indifferently by writers, as if all flies were guilty, or as if there was but one kind of fly—presumably the house fly. Dr. Howard accordingly has undertaken a careful investigation of the insect fauna of human excrement, especially of the flies which breed in human faeces or are attracted to them. The result of these researches was exceedingly instructive. It was discovered that the number of species of insects found breeding in or frequenting human excrement was very large, of which the diptera alone were of significance from the disease transfer standpoint. The conclusions reached were that it appears plainly that the most abundant species breeding in or attracted to human excrement do not occur in kitchens and dining rooms; but it is none the less obvious that while the musca domestica (house fly), under ordinary city and town conditions as they exist at the present day, and more especially in such cities and towns or in such portions of cities as are well cared for and inhabited by a cleanly, respectable population, may not be considered as an imminent source of danger, it is, nevertheless, under other conditions a factor of the greatest importance in the spread of intestinal disease. It is shown that the house fly prefers horse manure as a breeding place; but it is also shown that in army camps where human excrement is left exposed it will and does breed in this substance in large numbers, and may be attracted to it without necessary oviposition. Dr. Howard also advises that Boards of Health everywhere should look after the proper treatment or disposal of horse manure, primarily in order to reduce the number of house flies to a minimum, and that all regulations regarding the disposal of garbage and foul matter should be made more stringent and should be more strictly enforced. It is a fact that in cleanly towns and localities flies are not generally numerous. By the adoption in civil communities and in military camps of as sanitary measures as circumstances will permit, and, above all, by the prompt disposal of garbage and other filth which may be calculated to attract flies, a demonstrated cause of spreading disease will be greatly curtailed.

HOW ANTI-TOXIN IS PRODUCED

DR. CYRUS EDSON, the famous New York physician, not long ago contributed to a series of "End of the Century Papers," in which he told these interesting facts on how it is possible to secure the necessary antidote to combat a disease. He said:

Exact knowledge concerning disease germs has made it possible for us, first, to avoid infection; second, to accurately diagnose various diseases; third, to rationally and successfully treat a number of diseases by means of anti-toxin. The principle upon which the production of anti-toxin depends is very old; it is that every poison has its antidote. Every disease is a case of poisoning by the products of the germ life. The study of disease germs has enabled us to isolate more or less perfectly, outside of the body, the poisons they produce. These poisons, or toxins, as they are called, are given to animals in progressively increasing amounts, the initial dose being a very small one, only sufficient to poison the animal very slightly. We find that nature gradually tolerates larger and larger doses until finally the animal is able to withstand the effect of a dose many times larger than would have killed it in the beginning.

In the case of antitoxin of diptheria, which is best known and which affords perhaps the best example of all, the animal used is the horse. To commence with, a young, vigorous and healthy horse is injected with an amount of diptheria poison or toxin sufficient to kill 10,000 guinea pigs, each weighing 250 grammes. After from three to five days, as soon as the symptoms of poisoning caused by the dose have disappeared, a second injection, slightly larger than the first, is given. In order to partly neutralize the effects of these great doses of poison,

a certain amount of anti-toxin may be given the animal. At periods of from five to eight days the animal is again injected until two months have elapsed, when it is found to be able to withstand ten to twenty times the original amount without showing the effects of poisoning. At the end of three months the serum of the blood of the horse should contain about 600 units of antitoxin to each cubic centimeter. A unit is the amount of antitoxin which protects a guinea pig weighing 250 grammes, from 100 fatal doses of diptheria poison.

When the blood of the horse is found by slight bleeding and tests with guinea pigs, to contain the antitoxin in this strength the animal is carefully bled and the serum separated from the fibrin of the blood. Of course not enough blood is taken from the horse to do him any material harm, thus the animal can be bled again and again over a considerable period of time.

RESULTS OF FREEZING BACTERIA

WITHIN the last year or two some interesting experiments have been conducted in England, with the purpose of ascertaining the effect of extreme cold on the vitality of various kinds of bacteria. The tests were made with liquid air and liquid hydrogen, by means of which temperatures were obtained 300 to 400 below zero. In the majority of instances the microbes withstood this amazing chill and on thawing out exhibited signs of life.

In these experiments, however, the cold was applied for only a very short time, a few minutes or a few hours. A different class of tests has just been reported to a bacteriological congress by Dr. W. H. Park, of the New York Health Board. He employed only typhoid bacilli, but in order to make the investigation more thorough he took specimens which he had cultivated from twenty different cases of disease. Thus any inequality in their hardiness was guarded against. The particular feature of this scheme was not the severity of the cold, but its duration. Having prepared a lot of tubes containing his culture, Dr. Park reduced them all to a temperature of 23 degrees Fahrenheit, only a little below freezing, and kept them there. Then at intervals he would remove a tube and examine the bacilli.

At the end of three and a half days he found 42 per cent. of the microbes in the first tube alive. In a week all but 14 per cent. were dead in another. In two weeks only 7½ per cent. survived, in three 0.4, in five 0.11, and in seven 0.09. The percentage diminished as time went on, until in twenty-two weeks, or fully five months, all of the bacilli were dead. The tube opened after eighteen weeks was the last to show any life left. It thus appears that a long winter will usually kill typhoid bacilli, even if it is not a severe one.

A VEGETARIAN ROUND THE WORLD

THE vegetarian who worships that diet as his only hope of salvation is oftentimes pitied and more frequently ridiculed, but the plain man of common sense who adopts it purely for reasons of health, without attempting to proselyte those whom he meets, is generally looked upon with respect and frequently with admiration. Among the latter class is Joseph Malius, a globe trotter, known throughout the world for his connection with the International Lodge of the Order of Good Templars. Five years ago he listened to a lecture in Birmingham, England, on the subject of the vegetarian diet and was induced to make a trial of it for three months. It proved so satisfactory he saw no reason to change. This last year he traveled some 40,000 miles round the globe as an Honorary Temperance Deputation and his notes on how he fared prove of great interest as they were presented in the United Temperance Gazette of London. He says among other things:

In visiting the Sandwich Islands and Samoa we struck a tropical area whose dusky residents found their wants supplied almost without an effort until the advent of civilization multiplied their real or fancied wants. In the Sandwich Islands tropical fruits abound. The most staple article of food is the large tuber or root which is pounded like dough, till it eventually produces a custard-like food, called "Poi." This vegetable is so prolific and nourishing that a few square yards of land will grow enough of it to support a man the year round.

In the Samoan Islands similar foods are taken and the most abundant food supply in these and other South Pacific islands is the cocoanut. Its milk is a prized beverage; its kernel a staple food; its shell is fuel, its fibre is weaving material, and its oil serves as an illuminant, and for anointing the body. In some least civilized islands, when a child is born, the father plants twenty cocoanut trees which constitute its heritage and sufficient fortune, for with this growth the child is provided for throughout life.

In Ceylon I came among some of the Eastern peoples whose life-practice is vegetarian, or close akin to it. Ceylon is an earthly paradise of mountain and valley. Its tea plantations are less remarkable than its tens of thousands of cocoa-nut trees. The natives are largely Buddhists, but Hindoos and other peoples also abound. Some natives will catch and eat fish, but none will take the life of a warm-blooded animal or eat flesh. The staple food is rice, but it is commonly cooked as a vegetarian curry and with other elements, such as cocoa-nut, bread-fruit, jack-fruit or other excellent ingredients, deliciously flavoured with several native spices. There is a variety of fruits —dark green skinned oranges, deliciously sweet; small golden colored bananas of exquisite perfume and flavor—too delicate to be exported to England—and boiled cucumber is served up like vegetable marrow.

In Southern India, generally, vegetable curries are available, and even in Northern India, where other grain and bread is used rather than rice, a good vegetarian meal can be had at any railway station by speaking to the guard, who then telegraphs free to order. One excellent article of diet is a yellow or red pulse like small lentils, and which is called Dhal or Doll. It is very good and satisfying. When we realize that some two hundred millions of the natives of India never take flesh-meat; and when we see them carry on their heads such loads as one would not dare to put upon an Englishman, one sees a sufficient proof that the highest physical strength can be and is attained without flesh-eating.

Finally, I can say that at every point I found some practising Vegetarianism; several families adopted it during my stay with them at least; none made any difficulty in catering for me, and none made light of my principles. I expected most difficulty aboard ship; but though in my ten months' journey of 40,000 miles, I had to travel in twenty-six different steamships, I found I had only to tell the steward that I was a vegetarian and he promptly informed the cook and my needs were fully and satisfactorily met at every meal.

THE MEDICAL ROLL OF HONOR

A WELL-KNOWN authority has made out this list of the more brilliant observers of special varieties of disease germs: Pasteur, who isolated the bacillus of malignant pustule or anthrax, also that of pneumonia, and discovered or devised the anti-rabic or hydrophobic antitoxin; Koch, who isolated the germs of tuberculosis and Asiatic cholera; Leffler, who found the bacillus of diptheria, and Klebs, who collaborated with him; Danielson, the discoverer of the germ of leprosy, and Hanson, his son-in-law, who taught us much concerning its characteristics; Roux and Behrens, who perhaps divide the honor of having found the antitoxin of diptheria; Hallier, who discovered the bacillus of typhus and typhoid; Obermaler, the discoverer of tne bacillus of relapsing fever; Leveran, who first showed the parasitic nature of the cause of malaria; Kitasato, the brilliant Japanese observer and pupil of Koch, who gave us accurate knowledge concerning the bubonic plague and an antitoxin for its cure and prevention.

MAKING CUBAN CITIES HABITABLE

THE sanitary work of the American governors' general in Cuba will do as much to reflect credit on American enterprise as anything which has been done in that island. Havana is now pronounced to be one of the healthiest cities in the world. Havana's death rate last month was 19.32 per 1,000, which is much lower than New York and lower than the average in Washington. Three years ago Santiago was a hot-bed of disease. Last month the death rate was only 20.5, the population being about 44,000. In Guantanamo the death rate was only 5.77, and yet, before and during the Spanish war, disease raged there with fatal effect. In Havana the deaths in February last were fewer than during any month in the last twelve years.

THE FUTURE GOVERNMENT OF MEXICO

NO little speculation has been aroused by the recent illness of President Diaz and his possible retirement from the high office which he has held for the past sixteen years. The inflammable nature of the people and the ever-present fear of a revolution have impeded the progress of the nation in former years, but under President Diaz a stable government and the development of native resources have been brought about. A special correspondent of the Chicago Tribune in the City of Mexico writes of the situation as follows:

The death of President Diaz is a remote possibility; he is strong and vigorous, and may live many years to watch over the welfare of Mexico. Yet if so lamentable an event should occur, what would be the effect? Would there be a revolution? No. The two great Presidential possibilities are the Hon. Jose Ives Limantour and General Bernardo Reyes. These two, next to General Diaz, are the big men of the country. Either one as President would insure the peace and prosperity that come from a stable government.

Mr. Limantour would be the choice of the bankers, mer-

BUSY TIMES FOR A BIG BEAR
—*The Chicago Tribune.*

chants, and in general of the business-men of the country not because of any want of faith or confidence in General Reyes, but because they feel that Limantour has earned higher honors. He has given up the best years of his life to Mexico. He is a great financier, a brilliant lawyer, a courteous, refined gentleman in public and private life. He is energetic, has a strong will, and would make a firm president.

General Reyes has the sympathy of the army, and is likewise respected and admired by the best elements of the population of Mexico. He has not figured so conspicuously in national politics as Mr. Limantour, yet he has been a successful and popular Governor of Neuvo Leon; to him more than to any one else is due the prosperity of the City of Monterey. Mexico is sure to be well governed if either of these two men succeed Diaz. How would it be settled should they both outlive General Diaz? By General Diaz. The man he designates—Limantour or Reyes—will be the next President of Mexico. Will they fight? No. Both men have the welfare of the country at heart; they will pull together to the everlasting benefit of Mexico. No one here is thinking of a revolution. The men who are prominent in the development of the resources of Mexico are not passing sleepless nights. Colonel Joe Hampson, who earned a million or two dollars building railways and then built his own railway, the Gran Pacifico, does not worry; Thomas Braniff, who has about $8,000,000 earned in Mexico, invested in railroads, factories, etc., is not sad. The great Scotch banker, H. C. Waters, head of the Banco de Londres y Mexico, has put no additional watchmen on to guard the millions in his bank; the Gugenheims are forming their trust and continue to put their faith in the stability of this government. Diaz has builded well and strong. The institution which he has wrought after sixteen years of hard labor and which the American press calls "Modern Mexico," has absorbed the Diaz characteristics; it is rugged and vigorous, made of steel, and laid on the strongest of foundations. It will not bend or totter.

Grown up with it, and supporting it most loyally, are live, practical business-men, and with them thousands of railroad men, mechanics, mill hands, artisans, and workmen, who all know what peace means; these people will never be attracted by the fire-works of some would-be President or some border adventurer. The building up of Mexico is being done mostly by her own sons, and to the Mexican belongs the credit of her growth. All along in the professions, as in mechanics, are found the Mexican civil engineer, doctor, architect, etc., using modern ideas, imitating new works and new fields.

In the civil engineering profession can be found Roberto Gayol, who has originated and directed the great sewerage system of Mexico; Espinosa, directing the great drainage tunnel and canal; the President's son, young Porfirio Diaz, Jr., building the Palace of Justice, and whose great ambition is to become famous in the engineering profession; Diaz Lombardo, the bright city engineer, superintending asphalt streets. The doctors of medicine, Dr. Liceaga Lapez, and others have been honored in foreign countries. The public school system has penetrated into the remotest parts of the country, and the children have the same advantages to acquire knowledge as in any modern country. Religious liberty is unrestricted, and even the Mormon is welcome. Life and liberty are as safe in Mexico today as they are in any country under the sun.

ENORMOUS GROWTH OF RAILWAYS

THE growth of the railway business in the United States has been perhaps more remarkable than any other feature of the modern business world. Today it is stated that the railway mileage is 190,406 miles. Charles A. Conant in reviewing this progress from official sources in the Public Ledger of Philadelphia says:

The amount of capital required for the railway equipment of the world and the amount annually spent in railway maintenance and the payment of freight charges would have been considered incredible in the infancy of railway management. The capital stock of the railways of the United States alone was estimated in 1873 at a little less than $2,000,000,000, and the funded debt at a slightly lower figure, making total liabilities on these accounts of $3,784,543,034. This amount had more than doubled up to 1885, and much more than trebled up to 1899. The following table shows the liabilities of the railways, representing cost of construction, the gross receipts and the net traffic earnings for representative years:

Year.	Liabilities.	Gross Receipts.	Net Traffic Earnings.
1873	$ 3,784,543,034	$ 526,419,935	$183,810,562
1880	5,402,038,257	613,733,610	255,557,555
1885	7,775,858,194	765,493,309	266,615,933
1890	10,020,925,215	1,086,039,735	342,071,296
1893	10,941,711,122	1,207,106,026	358,648,918
1895	11,248,569,658	1,092,395,437	323,196,454
1896	11,179,544,386	1,125,632,025	332,766,979
1897	11,518,066,646	1,132,866,626	342,792,030
1898	11,585,069,036	1,249,558,724	389,666,474
1899	11,692,817,066	1,336,096,379	447,741,014

These are the figures furnished to the Treasury Bureau of Statistics by the editor of "Poor's Railroad Manual," and covers calendar years, instead of the fiscal years covered by the reports of the Interstate Commerce Commission. With allow-

ance for this difference in the period covered, the two sets of figures correspond in a surprising degree. The gross earnings reported by the Interstate Commerce Commission for the fiscal year ending June 30, 1899, were $1,313,610,118, and the net traffic earnings $456,641,119.

Other countries have shared in the wonderful growth which has marked the railway history of the United States. The freight traffic on the railways of the world is estimated to have trebled between 1870 and 1892, rising from 562,000,000 tons in the former years to 1,746,000,000 tons in the latter year. Europe absorbed 902,000,000 tons of the later traffic, the United States 749,000,000 tons and other countries 95,000,000 tons. The estimated railway equipment of the world in 1896 was about 445,000 miles (715,000 kilometers), representing a cost of nearly $3,300,000,000 (170,000,000,000 francs). In France the growth of railways in operation, exclusive of private lines and tramways, rose from 17,221 kilometers in 1872 to 37,739 kilometers in 1900. In Russia within the short period from 1887 to 1900 the mileage of the State railways alone, not including the private lines, rose from 2,928 to 20,346 miles. In the whole of Europe, according to the eminent editor of L'Economist, Europeen, the aggregate railway equipment in operation increased from 134,591 kilometers on January 1, 1875, to 269,743 kilometers (165,000 miles) on December 31, 1898. The latest figures of railway construction outside Europe and the United States indicate a total of about 93,000 miles, where in 1850 scarcely a mile of road existed, and even in 1870 there were less than 12,000 miles.

It is not surprising that producing and exchanging powers have been enormously increased by this equipment with the means of transportation, and that the world, from being separated into isolated local markets, has become a single great market, in which the staple products of industry compete with each other upon nearly equal terms, whether originating in the mills of England, the pioneer of manufactures, in the shops and homes of France and Germany, in the new factories of the United States with their modern machinery or in the still younger establishments of China and Japan. It was estimated in a recent article in the French economic periodical, the Journal des Economistes, that a saving in the transportation of commodities has been effected since 1850 by means of railways amounting to 10 per cent. of their price, so that without loss to any one and without regard to economics in production the necessaries of life can be delivered in any quarter of the world reached by railway traffic at one-eighth less than half a century ago.

LEATHER INDUSTRY OF GERMANY

THE increase in exports of American shoes and leather goods has been so marked within the past two or three years that an investigation has been made by American consuls abroad to determine the cause, and learn if possible, whether or not the demand will be continued. In the course of that investigation some facts were noted in Germany, especially, which indicate the trend of the hour. It is stated that the importation of American leather to Germany, which began after the last world's exposition at Vienna, has increased steadily until there are now in Frankfort alone eleven firms which import and deal more or less extensively in shoe, glove and harness leathers from the United States. As this leather is largely made from hides and skins imported originally from Europe, its high quality and the fact that it can be exported from the United States and sold at a profit in Germany, notwithstanding the high German tariff, showed the German tanners how far their American competitors had outstripped them in the race for cheap and superior production and set before them a lesson which they have been quick and eager to learn.

A leading New England manufacturing company, which turns out exclusively high-class tanning machinery, has been compelled to enlarge its plant to meet the heavy demands from its European agent, who, beginning three years ago, with an office in Frankfort, has extended his trade throughout Germany and into Austria, Italy and Russia. Leading German tanners have visited the United States, and, being everywhere freely admitted, have studied carefully and intelligently American processes and machines; and numerous expert workmen and foremen, skilled in the use of chrome, quebracho and palmetto, have gone to Germany and received large compensation for teaching their arts to the native tanners. In addition to all this the tanning industry in Germany enjoys the important natural advantages of an abundant supply of hides and skins, of the best qualities, cheap and profuse tanning materials, advanced chemical skill at wages less than those of manual labor in the United States, abundant capital at 3 and 4 per cent. interest, manual labor that costs on an average $3.57 per week, and a home market adequately protected and open to the import of foreign-made machinery at a nominal duty of 71 cents per 220 pounds.

The German tanner has not only all these points in his favor, but what is, perhaps, still more important, his home is of extraordinary capacity. The consumption of leather in Germany is almost phenomenal. Notwithstanding the enormous increase in the home-tanned product, the imports of leather are now greater than ever before. Several of the largest tanneries in the empire have either been built during the last four years or wholly reorganized and equipped with American machinery.

Some idea of the greatness of the tanning and leather industries in Germany is given in the statement that 600,000 persons are engaged in it and that it ranks about fourth in the productive interests of the country. The value of the leather consumed annually by the German people aggregates no less than $100,000,000, exclusive of exports. There are in Alsace-Lorraine alone eighty-two tanneries, a single one of which —at Strassburg—employs 250 workmen and tans 60,000 hides per annum. The hides tanned are of domestic origin, or are imported from North and South America and from India.

The difficulty in developing the sale of American-made shoes has been largely owing to the lack of wholesale shoe jobbing houses, of which there are none in Germany. It is probable that this will be overcome by the establishment of American shoe stores in the larger German cities such as have been established in London and Paris.

THE HARMONY OF COLORS

IT is often asked what are the general principles relating to the harmony of colors. Every young lady who wishes to appear to the best advantage oftentimes makes a study of the subject while others allow themselves to be guided purely by their instinct. Too many fail utterly and are the objects of commiseration on the part of their friends.

The following general principles of harmony and contrast of colors should be observed in the assortment of colors:

First—The primaries, red, yellow and blue, associated in pairs, will assort better together as a harmony of contrast than an arrangement formed of one of these primaries and of a binary color of which the primary may be regarded as one of the elements. Thus, red and yellow, red and blue, yellow and blue, will respectively accord better than red and orange, red and violet, yellow and green.

Second, in an assortment of the primary with binary colors, red and violet, yellow and orange, yellow and green, accord respectively better than blue and violet, red and orange, blue and green.

Third, when two colors are bad together, it is always advantageous to separate them by white.

Fourth, black never produces a bad effect when it is associated with two luminous colors. It is therefore often preferable to white, especially in an assortment where it separates two colors from each other, such as red and orange, red and yellow, orange and yellow, orange and green, yellow and green.

Fifth, black in association with sombre colors, such as blue, and violet, and with broken tones of luminous colors, produces harmony of analogy, which in many instances may have a good effect.

Sixth, black does not associate so well with two colors, one of which is luminous and the other sombre, as when it is associated with two luminous colors. For instance, with red and blue, red and violet, orange and blue, orange and violet, yellow and black, green and blue, green and violet, black is inferior to white.

Seventh, gray is inferior to black and white in its association with two luminous colors. Only with red and orange it associates more happily than white. In association with sombre colors, such as black and violet, and with broken tones of luminous colors, gray produces harmonies of analogy.

Eighth, gray is perhaps more advantageous than white when associated with two colors, one of which is luminous and the other sombre. It associates more favorably than black with orange and violet, green and blue, green and violet.

A LITERARY BROKER AND HIS PROBLEMS

THE literary broker is the newest term applied to those who act as the agents of authors, the go-betweens, who handle the manuscript of a writer as they otherwise might the bonds or stocks of a corporation. There have been literary agents for centuries, but in nearly every instance they were the employes of writers, of publishers, or of both. The broker of today is an independent business man, whose trade is a connecting link between authorship, newspaperdom, the book world, the stage, and foreign lands. He expresses the growth of literature as an industrial force.

Many causes have contributed to the change. Common-law copyright has been developed and strengthened by legislation until statutory copyright as it now exists protects ideas as thoroughly as the patent law protects inventions. Even farther reaching is international copyright, which enables a successful writer to find profitable markets in a dozen lands. Another important factor has been the legal recognition of other incorporated rights. Dr. Johnson enjoyed the common-law copyright of very questionable protection. Kipling, Doyle, Harte Parker, and Clemens have first the book copyright; second, the magazine copyright; third, serial rights; fourth, the rights of dramatization; fifth, the rights of translation. The creation of Sherlock Holmes illustrates the possibilities of modern authorship. The stories in which the famous detective is the leading character have appeared in British and American magazines, in daily and weekly newspapers, have been published in book form, been dramatized and successfully produced, and have been translated and proved profitable in other tongues. To take advantage of these rights requires time, labor, and business ability. A few authors possess the leisure and the commercial talent requisite for this kind of work, but only one-half are willing to engage in that kind of enterprise. They find it more profitable to keep on with their literary work and transfer everything else to capable brokers. The vast body of authors dislike business and hand all such matters over to professional agents. For this reason the literary broker of the present time, especially when successful, has as much business as he can attend to and is often compelled to turn away applications from writers of more than ordinary ability. The principal houses pursue simple and efficient methods. In the late autumn they issue a programme for a long period in the coming year. One just published gives the list of novels and short stories beginning in January, and running through to the middle of November. Another catalogue by an American house covers the entire year. These lists enable editors to pick out reading matter weeks and months in advance, and give newspaper critics and reporters a capital insight into the news features of the book world.

The public is a fickle mistress and hard to serve. One of the representatives of a literary brokerage house in New York speaking of this said that a few years ago there was a certain Englishman, who wrote capital sea stories. These sold splendidly both as serials and as books. He received a handsome income from his writings, and the house cleared a large profit upon the serial rights. All of a sudden his popularity began to wane rapidly. It was not on account of any decline in his powers, because, if possible, he turns out a better novel today than he did twenty years ago. It was not on account of any change in his habits, as he leads the same invalid life now as then. It was not because sea stories were going out of fashion, for they are as well loved as ever. Yet the public seemed to have grown tired. The sales of his books fell off, and the serial rights diminished in value. On the other hand, an American author of sea stories, who a few years ago was unknown and who was glad to accept a half cent a word for his writings and all their rights, is now getting five cents a word for the serial rights alone. Whenever a writer once popular and then forgotten approaches his deathbed, there is suddenly a strong demand for his productions, and especially for his last book. This increases with his death and lasts from a month or two to a year."

The term "international broker" is usually applied to men doing business in English-speaking countries. Those that operate in other languages are known as "foreign brokers." Strangely enough, the man who sells a German translation in this country is a foreign broker, while the one who sells to England is an American broker. The foreign trade is steadily growing. In this country are many excellent newspapers, daily and weekly, and also magazines, in German, Swedish, Italian, Norwegian, Finnish, Bohemian, Hungarian, Polish, Spanish, and French. All of these journals buy serial rights from authors in their home country, and many buy translations of American and English writers. In addition to the lands named, as well as Russia, the agents purchase local translation rights for their own countries and cities, and foreign authors sell serial rights in their own languages to the United States for the papers conducted in their tongues, and also translation rights to American publishers. No less than thirty-five foreign authors enjoy a fair demand so far as translation rights and translation serial rights are concerned in the United States.

THE SUCCESSFUL AUTHOR; HIS PROFITS

THE contest for literary prizes is growing keener every year with the extension of the publishing business, the growth of population and its higher education. While the number of writers of good fiction is steadily increasing it requires even greater care to pick the winning manuscript. An interviewer of the New York Sun visited the head of one of the largest publishing firms in that city and learned some facts which would be of great value to the future literary man or woman.

The process through which a manuscript submitted to a publisher passes is not widely understood. Fully nine out of ten manuscripts submitted to a publisher proclaim themselves to be completely impossible trash at the very outset—stuff that any schoolboy could see would not do. The tenth manuscript, we will say, starts off so fairly and possesses such marks of having been written by a person of intelligence, that the publisher finds himself reading quite a lot of it.

Having decided that it is quite fit to be passed on to a reader, he passes it on. The reader reports, we will say, that the manuscript has its points, but that, on the whole, he doesn't believe it's quite up to the printing mark. Then it is as likely as not that the publisher will hand the manuscript over to another reader for his opinion. If reader No. 2 pronounces the book to be well worth printing, it often happens that the publisher will submit it to still another reader, and accept the judgment of the best two out of the three.

The fact that publishers decidedly do know a good book when they see it—or see even a part of it—has been illustrated only recently in the case of a novel that, published a bit over six months ago, has already sold nearly 350,000 copies. The man who wrote this book was following an exceedingly exacting profession at the time the scheme of the novel took shape in his head. He couldn't see much chance of his ever getting the thing written, for he had to make a living for himself and his family.

But he started to work on the novel, anyhow, jotting down passages in trains and cabs, any place at which he happened to be at leisure for a while. In this way he completed the first few chapters of the book. He wasn't a particularly indulgent critic of his own work, but the embryo novel struck him as being a pretty good thing. So he took a few hours off one day and went to see a publishing firm with his few chapters in his pocket. The publisher told him to come back in a few days, and when he again presented himself to the publisher the contract was all ready to be signed. The publisher requested the writer of those few chapters to give up his job and go ahead and finish the novel, and he guaranteed to take care of the writer while the work was in progress. The writer adopted the suggestion, and he drew on the publisher for his needs, until the book was completed.

This novelists has made between $75,000 and $100,000 out of that one book already, and is going to make a lot more out of it. He has, besides, another book three parts completed that will sell in advance orders by the tens of thousands of copies before it is issued.

There is big money in a successful novel. Of course, the prizes are few and far between, but they're worth trying for. The usual arrangement that a publisher makes with a writer whose reputation is not so firmly established that he can dictate terms is on the basis of the writer's receiving 10 per cent of the retail price of the book. That is, if the publisher is going to get up a $1.50 book, the writer receives 15 cents for every copy sold, with the usual reservation that the writer is to re-

ceive no royalties until 1,000 copies, say, have been sold. The publisher holds out these 1,000 copies to contribute toward the cost of publishing the book.

Now, at these terms, the writer, if his book is in any way successful, makes about as much as the publisher, and he doesn't stand to lose anything, either. The publisher sells the book to the trade for one-half the retail price and he has to make the book, and advertise it and market it; and if it falls dead he is all that money out of pocket.

Writers of renown get better terms, and even writers whose initial books have large sales get bigger royalties in proportion as their books succeed. A writer who starts in on the 10 per cent. basis will get 15 per cent., say, if his book reaches the 75,000 mark and 20 per cent. when it passes that mark. Only one book, of course, out of a great many, gets into figures like these. Yet there are many novelists of note whose books, year in and year out, achieve sales of only 8,000 or 10,000, on the average, and who make fine livelihoods out of the royalties, old and new.

STEPS IN DEVELOPMENT OF THE STEEL INDUSTRY

WHAT has led to the great development of the steel industry within comparatively recent years? This is the question which is being asked by those who are now impressed with its magnitude. A writer in the New York Tribune has been making a study of this subject and among other things he calls attention to the tendencies which led up to the consolidation together with some valuable facts concerning the industry. He says:

Not long ago nearly all the American manufacturers of the plate which forms the basis of tinware organized a consolidation among themselves; the leading wire manufacturers did the same, and in a comparatively short time similar action was taken by the car wheel founders, steel bridge builders, tube manufacturers, steel hoop makers and other groups of workers in iron and steel. Some of these consolidations were more complete than others, but in almost all these different branches of industry there were a number of independents who did not join in the movement.

Meantime the producers of the raw material required by these manufacturers were proceeding in like manner. The old Illinois Steel Company, of Chicago, was reorganized as the Federal Steel Company, and absorbed the properties of the Lorain company. The new National Steel Company represents an aggregation of eleven different companies in Ohio and Pennsylvania, and the Republic nearly thirty, the latter being scattered from Minnesota to Pennsylvania and from Ohio to Alabama. But while these organizations sustain fairly close relations with some of the consolidations which are their customers, they have held aloof from each other and also from the Carnegie company, their great rival. Hence the possibility that closer harmony may be established between them in the near future is a matter of tremendous importance.

One of the most potent influences in stimulating the iron and steel industries of the world during the last thirty years was the invention by Bessemer of a cheap process of making steel. This led to the introduction of steel for railroads, the construction of steel ships and bridges, and the frames of office buildings such as the boldest architects and engineers dared not dream of a quarter of a century ago. To be sure, Sir Henry's wonderful process is now declining in favor and is likely to be surpassed before long by the open hearth method, but it has conferred an inestimable boon upon mankind.

In some respects the steel manufacturers of the United States have enjoyed exceptional advantages of late years. The deposits of iron ore in the Eastern states, which have been utilized from pre-Revolutionary times, gave the country no special opportunity of competing with other nations, but the opening of the splendid ore beds in Upper Michigan gave American iron and steel industries a wonderful stimulus. Finally, still richer stores were discovered up in Minnesota, on the north side of Lake Superior. These lie on the surface of the ground and can be mined with a steam shovel. Something like nine-tenths of the iron produced in the United States just now comes from Lake Superior, and nearly half of it from the Vermillion and Mesaba ranges. England's mines are slowly becoming exhausted, and her iron is so deep in the earth that the operation of mining it is much more costly than that of getting out the Minnesota ore. Moreover, she is obliged to import ore from Spain and elsewhere to meet her requirements.

Another factor in the development of the iron and steel industries of this country is the adoption of machinery and policies at the great centres of production which enable American furnaces and mills to turn out more material in a given time than plants of ostensibly the same capacity in Europe. The conveyance of molten pig iron from the furnace in which it was made directly to the Bessemer steel converter which is to utilize it, without allowing the metal to cool, is only one of a score of innovations that have enabled the United States to produce more cheaply than other countries.

A striking characteristic of American practice during the last few years has been the establishment of a variety of related industries under one ownership. Years ago mining, transportation, making pig iron, manufacturing coke out of soft coal for blast furnace fuel, and the production of steel were all distinct industries and conducted under different auspices. The furnace man bought his ore and fuel from somebody else, and he sold his product to the steel makers. But now all of the leading steel producers have their own mines near the shores of Lake Superior, and this statement is true not only of such concerns as the Federal Steel and Carnegie companies, which make ingots and sheets to sell to other manufacturers, but also of the American Steel and Wire and the Steel Hoop combinations. The steel tube and tinplate interests have had such close affiliations with the National Steel Company that special mining privileges were not deemed necessary.

Then, too, many of the great steel producers now make their own pig iron and burn their own coke for blast furnace use. While the Carnegie company did not pursue the latter course, its relations with Mr. Frick were so intimate that it amounted to the same thing. Again, the famous Pittsburg organization had its railway to Conneaut, on Lake Erie, for the transportation of ore, and a line of steamships from that point to Duluth, although it contracted with a rival line (Mr. Rockefeller's) for the handling of part of its supply. In a like manner the Federal Steel Company's list of properties includes iron mines, coal lands, coke ovens, railways, docks and steamships, as well as blast furnaces and steel mills.

The production of steel throughout the entire world is about 27,000,000 tons, of which the United States contributes two-fifths, or nearly 11,000,000 tons, Germany upward of 6,000,000 tons, and Great Britain about 5,000,000. In 1899 nearly one-fourth of the American steel product was in the form of rails; last year the United States exported 356,245 tons of rails alone.

TWENTY-FIVE YEARS OF THE TELEPHONE

THE Bell telephone, or the telephone of commerce, is twenty-five years old. On its twenty-fifth anniversary Acting President Cochrane made an address before the American Telephone and Telegraph Company in which he said: "Twenty years ago there were 47,880 telephone subscribers in the United States, and 29,714 miles of wire in use for telephone purposes. At the end of last year there were 808,880 exchange stations equipped with our instruments, and 1,961,801 miles of wire employed for exchange and toll line service. The estimated number of daily exchange connections is 5,668,986, or about 1,825,000,000 per year. The average number of daily calls from each station is 7 1-10, the cost to the subscriber varying in different places from 1 cent to 9 cents per connection. The investment in line construction, equipment and supplies for the long distance system up to December 31, 1900, was $16,152,020.72."

While the Bell telephone is twenty-five years old, the invention of speaking over electric wires is much older. About fifty years ago a German professor invented a telephone and described it in a book. He really made the first invention. When the correspondent of the Philadelphia Public Ledger was a boy he was taken by his father to the house of an Italian in Staten Island. The Italian had wires running everywhere, and he was experimenting with the idea of the telephone. This was some time before the Bell telephone appeared. A little later, Professor A. K. Eaton of Brooklyn made an instrument by which speech could be transmitted long distances over a wire. The writer was at one end of the wire when the first sentence was spoken this way and remembers the thrill of wonder and delight which the discovery caused. This was several months before the Bell patent. But the Supreme Court of the United States, after a long litigation, awarded to Professor Bell the rights of the first patent.

PROGRESS IN DISCOVERY, SCIENCE, AND INVENTION

THE NEW STYLE PHOTOGRAPHS

PHOTOGRAPHY in a new style and available only to the rich has been introduced in several of the largest American cities. It is called "The platinum process, with cold development on sepia paper." Sepia portraits have been made for a number of years, and their dark-brown tone has been popular. But photographers have looked in vain for a sepia paper which would last. M. J. Steffens, a Chicago artist, went to Europe last summer and got what he wanted. He bought up three preserving patents in England and found a man in Berlin who could properly utilize them. With the new paper and with the new methods of using it, Mr. Steffens claims to have inaugurated a new era in photographs.

The pictures are finished by hand with chemicals and brush and the effect given is that of an old-fashioned painting. The softness and perfect finish of tone are what have made the photographs, taken under the new development, so quickly popular. Formerly the sepia tone was produced by the use of hot bicloride of mercury, which is hard both on the life of the picture and the man who makes it. Oxalate of potassium and oxalic acid are used in the cold or slow process.

Like etchings, these pictures are made directly on the paper. No cardboard is used. Mr. Steffens is having his skylights torn out and will hereafter use only sidelights.

Mr. Steffens says of the process: "There is no secret in producing these new photographs. There is no more secret about photography than about painting. Every photograph shares the character of the man who makes it, just as the painting shows the skill and character of the painter. I predict great changes in the art of photography within the next few years. With the banishment of old fogy skylights and the introduction of this new sepia paper, we are in a fair way to produce photographs, the results of both machine and handwork, which will be not only faithful likenesses but in themselves works of art. I wish to see photography advance as a science and as an art."

TWO VALUABLE INVENTIONS

THE trend of the times is to enlarge the world to those who by birth or accident or misfortune have lost the use of one or more of their senses. Not long ago it was announced that a New York City firm was now manufacturing instruments which make it possible for even the totally deaf to hear sounds, and by a process of education to be able to understand conversation. Other instruments are made by the same firm for those in different stages of deafness, the principle being an electric amplifier of sound.

Paris has been interested in a new invention for the blind, the cinematograph. Dr. Dussaud, of the Psychological Institute of Paris, described this in a recent lecture at the Hospital des Societes Savantes. The cinematograph is a machine which passes under the fingers of the blind a series of reliefs representing the same object in different positions—the branch of a tree, a bird, or any other object. The blind person has the illusion of moving scenes just as photographs passing over a luminous screen lend the illusion to those with sight.

It seems that Dr. Dussaud has long been interested in an invention for the deaf on the same principle as the instruments now being manufactured in this country. He arranged an electric vibration which gives the deaf the notion of musical rhythm. For those not entirely deaf, he has invented a "gradual amplifier of sounds," which supplements the organs of hearing and in some instances improves them.

Dr. Dussaud expressed the hope that these two inventions would materially aid in the education of the deaf and blind. The doctor gave a number of statistics already furnished by him to the Academy of Medicine and the Society of Biology, showing that his method had been applied during the last four years to more than three hundred patients affected either with blindness or deafness, and that in most cases the results obtained had been extremely satisfactory.

BACTERIA TO DESTROY SEWAGE

A COMMISSION was recently sent to England by the state of Connecticut to investigate the various processes of disposing of sewage. The New York Journal calls attention to the latest methods they found in operation, one of which was particularly in favor.

"English sanitary engineers have all turned to the method of treating sewage by bacterial methods. These consist in employing huge armies of bacteria to attack and devour sewage. The bacteria rapidly destroy those things in sewage which can putrify. When the processes are efficient the liquid passes off, less in volume than before, but nearly clear, free from odor or impossibility of subsequent decay and in most cases will cleanse rather than pollute the stream into which it discharges. It cannot, however, be safely discharged into the streams above the point from which drinking water is taken. The bacteria adapted for this purpose are of several distinct kinds and functions are held and propagated, one sort in closed tanks without access of air, the other in the interspaces of filter beds which have a regular supply of air.

"As a result of all its investigations the commission reports that the cleansing of sewage by bacterial action is the only method which seems at present to give promise of widely successful application. To the study and practical operation of this method the work of all sanitary engineers is at present directed. No other known method actually destroys the putrescible matter in sewage, making the effluent clear, not poisonous to fish and incapable of putrefaction. No other known method can, therefore, satisfy reasonable requirements in those cases where the effluent must be discharged into streams or shallow harbors.

"'No city, borough or town which has not now a sewage system should be allowed hereafter to build one which will discharge sewage or polluted water into any stream,' says the commission, 'whether such stream at the time is used by others for sewage disposal or not, nor should private corporations or individuals be allowed to discharge house sewage into any stream or river.'"

CANCER PARASITE DISCOVERED

AMONG the latest scientific achievements is the discovery of the cancer parisite. Professor H. R. Gaylord of the University of Buffalo, who has charge of that laboratory, recently stated:

Cancer is caused by an animal parasite, which we have identified and isolated in the New York State cancer laboratory. In reviewing all the material and evidence accumulated in the laboratory in the last three years, I conclude:

That the organism of cancer is a protozoon, and that the observations of Pfeiffer in 1891 were essentially correct.

That the publication of Sjoebring in February, 1900, combined with my own observations in 1899, proves conclusively that the organism of cancer can be demonstrated in the fresh material of cancer.

That its cycle of development can be observed under the microscope.

That it can be injected into an animal and recovered from the organs and blood of the animal.

That from an animal so infected others may be infected, according to their susceptibility.

That the organism can be demonstrated in the tissues of those animals and that, under proper conditions, those organisms and cultures, especially when growing in the peritonial fluid retain their virulence and are capable of producing carcinoma or cancer in animals.

THE INDIAN IN ARCHÆOLOGY

CURATOR STEWART CULIN of the Museums of the University of Pennsylvania made an address not long ago in which he described briefly some results of his summer trip among American Indian tribes, stating that of the 350,000 Indians north of Mexico, and including the Esquimaux, there are fifty-seven linguistic stocks, though three-fourths of the Indians are in eight stocks, the others being practically extinct. "We have no evidence," he continued, "to connect the Indian with past geologic ages, such as we have discovered in the Old World. The anthropologists place the age of man in America as beginning at the end of the Tertiary Age, which geologists fix as 60,000 years ago. There is some question as to the value of studying the man physically by somatology, and the archaeological work can wait. We have insufficient knowledge now to observe what ought to be observed. But the man himself, who, after all, we are most interested in, will not last more than a few years for scientific purposes. In twenty years the Indian as we find him today will be extinct. In even ten years it will be very difficult to make the collections that we can make today.

"The impression exists that we have plenty of material—that the museums are full of material, etc.; but, in point of fact, compared with what we can and must get, we have nothing."

The Danger is in the Neglect!

That persistent, tickling cough, if not cured now may hang on all winter and lead to lung troubles. It's what a cough may lead to that makes it dangerous. Be armed against danger by keeping always in the house, ready for use,

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A STENOGRAPHER AS A FARMER

A FLOURISHING little farm of three acres on the north end of Lake Champlain produces yearly more than two and a half tons of honey and fifteen hundred ducks, besides quantities of fruit which is marketed at the neighboring summer hotels. It is owned and run by Miss Frances Ellen Wheeler, for several years a stenographer and typewriter in New York City.

Miss Wheeler learned stenography in the first class of the kind formed by the Young Women's Christian Association at No. 7 East Fifteenth St. After several years of office work her hands became disabled, and the problem arose how to save the little family home at Chazy, N. Y., with its bee plant.

Regarding her first experiences she said:

"Now that the difficulties are surmounted I can smile at the combinations which ignorance and ingenuity inflicted on those bees and the results that swept back upon their owner that first summer. It can be safely said that my apiary ran the gamut of all the misfortunes to which a bee yard can be subjected without actual ruin. A winter's study of bee literature, coupled with the practical knowledge already gained, paved the way, however, to future success, and I have never had trouble with the bees since that time, except through occasional inefficient help. The yard has increased from thirty-one to seventy colonies.

"The duck industry grew out of the bee work, and was started to justify me in hiring a capable man for the entire season, so that I might have his services in the apiary. The first year I had five Peking ducks, their eggs being set under hens. That fall thirty were kept, and in the spring incubators were used for hatching. I now winter seventy for breeding. While nearly every incubator on the market can give a fair hatch, what is most needed is a machine which, without the aid of the operator, will hold the temperature steady all night in the egg chamber. No one can appreciate this who has not been up and down night after night during the hatching season regulating a refractory incubator. The machines that I now use hold the temperature steady for days at a time.

My market is the biggest hotel on the lake, and I furnish all the ducks that it uses, another hotel taking the overflow. The birds are shipped twice a week from the middle of June until October 1. I spare no expense or trouble to produce the finest table duck.

It is fascinating work to take a place and develop its possibilities. The soil responds generously to one's efforts, and all nature smiles gratefully in fruit and flower. About such a life there is an independence and scope beside which an office position seems very tame.

"Clovernook, Miss Wheeler's home, is an ideal spot. It occupies a sunny slope running down to the river, and comprises three broad terraces. The middle terrace is in the possession of the bees. The lowest one along the river is covered by a grove. The buildings, duckyards and garden front the road.

A NEW INDUSTRY FOR EGYPT

THE land of antiquity has been found rich in oil. An American syndicate has been drilling wells and has just opened a monstrous big well, fifty miles from Suez, which as a producer ranks up to or above the greatest gushers of America or Russia in their palmiest days. The oil, which was struck at a depth of 2,350 feet, is of the highest quality. From reliable sources it is stated that oil experts believe the ancient land where Pharaoh drove the Israelites into the Red Sea to be the greatest oil country in the world when developed. When the drill reached a depth of 2,000 feet the superintendent was on the point of abandoning it, but decided to go 500 feet deeper, with the result that oil was obtained in abundance. Fifty or more derricks are going up for other wells in that vicinity.

CULTURE OF GRAPEFRUIT

GRAPEFRUIT is no longer a luxury for the rich alone. The market for it has widened materially, and its culture is growing rapidly in Florida, particularly on the Indian River and along the Florida East Coast Railroad. The fruit is grown on the same kind of land as oranges, and is cared for, harvested, and packed in the same manner. A few years ago a man going into the orange and grapefruit business in Florida would set out one-quarter of his land in grapefruit and the rest in oranges, but the proportion is different now. The public has developed a taste for the fruit. "Developed" is the proper word, as certainly a natural taste for the bitter things is as rare as a natural liking for olives or tomatoes. Being in the fashion, grapefruit commands a much higher price in the Jacksonville markets than do oranges, $10 a box being obtained, while large-sized single grapes retail at twenty-five cents.

EDUCATIONAL PROBLEMS OF OUR DAY

COMMERCIAL HIGH SCHOOLS

PROF. EDMUND J. JAMES of the political science department of the University of Chicago criticises the present tendency of the high school system in America which turns young men towards college and the professions and away from business. He says:

The whole effect of the present system is to direct boys away from business by turning them toward college and the professions. Nearly every bright boy now goes to college when he graduates from high school, and this leaves only the inferior ones to go into business.

Chicago should have three commercial high schools, fully equipped and with able instructors, one in each section of the city. The tone and entire influence of these schools should be to encourage boys to enter business and fit them to be successful in it. Such schools will require time to develop, for we have no teachers in America at present who are able to conduct such a school. After a few commercial schools have been established then it would be an easy thing to put commercial courses in all high schools.

A TEACHER in the SCHOOL GARDEN

THE school garden, for some years a recognized adjunct of European schools, is steadily gaining a place in our educational schedule. Bessie L. Putnam, discussing this topic in the Journal of Education, calls attention to the fact that while the horticulture or economic point is kept in view abroad, in our own land the mental drill and aesthetic influence are prominent features:

As for the aesthetic element, our own plants are as beautiful as any of foreign extraction. Modesty and delicacy of coloring, matchless form, and regal stateliness are each personified in many forms. The arbutus hides from public gaze, the golden-rod flaunts its gay banners from every hedgerow, while vines galore serve to cover up defects, and render the roughest crag a support for their beautiful drapery.

The Virginia creeper, sometimes climbing by rootlets, as well as by disk-tipped tendrils, is one of the most beautiful, as well as rapid-growing, vines, readily adapting itself to almost any location, and quickly forming a dense screen. The wild cucumber is also a rapid grower, and for the same purpose admirable. The attention of pupils might be called to the difference in roots. The former is a perennial; the latter an annual, but, as it appears regularly from year to year, thanks to the agency of self-sown seed, the shortness of its life is often unsuspected. The ground nut is another handsome climber, with a little history of its own. The tuberous roots were relished as food by the aborigines, and we are assured that it would fill a prominent place in our own culinary affairs, had we not come upon the potato.

The native aquilegia, or columbine, a charming symphony of coral and yellow, readily establishes itself, and proves an interesting as well as beautiful plant. The teacher notes how the bee gets its honey; also the change in position of seed-pods as they mature.

No single family furnishes better material than the violet, being found in some form from earliest spring to autumn.

The closed gentian has baffled many an amateur botanist, who waited in vain for the buds to open. But the bumble-bee, not so patient, has found out how to penetrate to the inner sanctuary; and its frantic efforts to escape when fully within the folds of the blossom are quite as comical to the observer as effectual to the plant in the work of cross-fertilization.

The wild indigo is a good illustration of the legumes. The meadow lily may be taken as a worthy representative of the lily family. Golden-rod and aster are excellent types of the composite, also suggesting the mutual assistance between bee and blossom.

ORAL TEACHING OF PHYSIOLOGY

A NEW order has been made in the education of small children at the public schools in Somerville, Mass. Physiologies are considered in part as "improper" and hereafter only one copy will be allowed for the teacher's desk. School Committeeman Sanbern, who leads the movement, says that the books now in use are objected to by some of the parents. He introduced an order that "in the primary and grammar schools instructions in physiology and hygiene be entirely oral, and that hereafter a single desk book for the subject be furnished for the use of teachers only, and it is hereby required also that instruction be regarding the proper care of the body rather than the structural formations."

It is the idea of Mr. Sanbern to have the required instruction on the subject given orally by the teachers; something in the way of a lecture method rather than by reading and study on the part of the pupils.

EDUCATING CUBAN CHILDREN

THE Cuban Orphan Society has been making strenuous efforts to provide kindergarten and industrial training for Cuban children. Work is now being done for half-orphans under six, and for their preparation for self-support on an intelligent response to the duties of maturity, by the society at Santa Maria del Rosario, Havana province; Matanzas, Matanzas province; Sagua la Grande, Santa Clara province; and at Santiago de Cuba, Santiago province.

In manual training a beginning has been made at Matanzas, in co-operation with Dr. Eduardo Diaz, Director of the Provincial Institute. Teaching girls in sewing classes is a part of this work. Everywhere in Cuba fine embroidery and drawn work is taught, but little or nothing of plain sewing. By preparing sixty public-school teachers in the city for scientific instruction in the making of underclothing and dresses, the society hope to create a public sentiment for sensible sewing with a fair market value.

GROWTH OF KINDERGARTEN IDEA

THE unusual success which has attended kindergarten work has led to its development in the United States to a remarkable degree. Fifteen years ago there was not a kindergarten in connection with the public schools of Chicago, today there are ninety-three under the supervision of superintendents and ten more will be opened in the near future.

No less rapid has been the growth of training schools for kindergarten teachers in Chicago.

For nearly five years the Chicago Froebel association has had a kindergarten training school at Hull house, which harbors so much that is for the good of the world; besides this there are the Chicago kindergarten college, for the training of all women who wish to be shown how to care for little children; the Chicago free kindergarten association, the kindergarten institute, the Pestallozi-Froebelian school, Chicago institute, the kindergarten club, especially for kindergartners in public, private or association work; besides a long list of public, private, social settlements and mission kindergartens.

In other cities a steady increase in interest is displayed. In Newark, N. J., under the care of Charles B. Gilbert, the increase has been marked. During his four years' headship of the public school system the number of kindergartens increased from 2 to 52. Indianapolis, Ind., Toledo, O., and Birmingham, Ala., are other cities of remarkable record. In Massachusetts there are public kindergartens in 36 towns and cities, with a steady growth in attendance.

RAISING MEDICAL STANDARD

THE curriculum adopted in the medical department of the University of Pennsylvania embodying four years of exclusively medical study, has been made the standard for Pennsylvania by the State Medical Council, and may become the standard in other states. Under this new standard it is impossible for an unfit man to secure the right to practice medicine in Pennsylvania. That state's medical laws have always been pronounced adequate. The trouble has been to enforce their provisions. This trouble has just been removed in the adoption of a standard to apply in all examinations for license to practice medicine. Medical-practice acts, designed to exclude unfit men from the profession, are in force in many states, and like measures are under consideration in other states. A fault with the majority of these laws is that the standard for admission is set too low.

TEACH AGRICULTURE IN CITIES

VACANT lots have been successfully cultivated in Philadelphia under the direction of the Philadelphia Vacant Lots Cultivation Association. During the past years gardens were provided for 480 families, consisting of 2,486 persons. The aggregate receipts from the various farms showed a total of $24,560. This is six times the amount expended by the association on the lands.

The Health Boards

have done the cities grand service by their efforts to secure cleanliness, but the dust of the streets is still laden with disease germs which collect on our clothing and would be absorbed by the skin if it were not for the daily bath. The simple use of pure water is not enough to rid the skin of these impurities. Sulphur destroys disease germs, and as combined in

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FIRST INDUSTRIAL SCHOOL FOR CRIPPLED CHILDREN IN AMERICA

THE attention which is now being given to the education of the crippled child, in the larger cities especially, is an important sign of the times. An evidence of the progress being made is the completion of the plans for a fireproof building in Boston, four stories in height, to cost $125,000.

Until this school was established most of the poor, crippled or deformed children in Boston, when discharged from the hospitals, were left to grow up in helpless ignorance. Although it was opened only a little more than six years ago, or on Oct. 1, 1894, it was the first school of its class in the country and still is the only one in Massachusetts. The beginning was made with thirteen pupils at St. Andrew's Hall, but the list of applicants grew so rapidly that the school has been moved or enlarged every subsequent year. In 1896, which was its second year, it leased 6 Turner street, with accommodations for twenty-six pupils. In the third year the house 424 Newbury street was leased. It afforded at that time room for thirty-six pupils. In 1898 the accommodations were enlarged for the reception of forty pupils. In 1899 the waiting list was so long that two additional pupils were crowded in, making the total forty-two, and in 1900, by still further crowding, room was made for forty-four, which is the maximum limit of the school. Under these circumstances the waiting list has grown to be almost equal in length to the list of those in attendance. Nearly as many needy and meritorious children are excluded as are received.

Since the new and elaborate building to be erected will undoubtedly be taken as a model by other cities, a brief description of the arrangements will be of interest to readers of Our Day.

The basement will contain the heating apparatus, the laundry and the janitor's quarters. On the first floor are to be an office, a reception-room, a restroom, with two nurses' rooms near by for the preparation and application of dressings, two school-rooms, with their necessary coatrooms, and a girls' toilet-room and a boys' toilet-room. On the second floor are to be placed two schoolrooms and classrooms for carpentry, printing, shoemaking and leather-working, a teachers' study and the necessary coat and toilet-rooms. On the third floor are to be placed a sewing-room, rooms for cane-working, clay-modelling, a nurses' room, three small rooms for six beds, bath and locker-rooms, four servants' bedrooms and the kitchen and pantry for school training, connected by a dumb waiter with the real kitchen above. The fourth floor will contain the dining-room, kitchen and serving-room, the latter being in close connection with the servants' stairway. The rest of the fourth floor is to be arranged so that in summer it may be an open-air playroom, but in winter may be glazed in and transformed into a sun recreation-room. If future needs demand it, this playing space can be turned into schoolrooms, resembling those in the stories below. The servants' elevator will connect all the stories. It will be placed in the servants' hall. The passenger elevator, opening on the front hall, would also carry passengers to every story.

COTTAGE GARDEN SOCIETIES

THE introduction of weaving and lace making among the peasantry of Ireland has been extolled, and deservedly so, but the "cottage garden societies," starting up here and there at the present time, must be of still greater value, as the cultivation of garden patches insures their owners greater variety and better order of food than the constant potato and milk diet. It is said that the "cottage garden" idea had its root, primarily, not in a thought to benefit the poor people's table, but as a means of improving the surroundings of their homes, often squalid and ugly to a degree.

At the town of Foxford one of the societies, conducted by the sisters, has been the means of introducing several vegetables, such as beans, carrots, turnips and onions, never used before, but now highly prized. Prizes for the best gardens, either flower or vegetable, are offered, and these prizes do much to stimulate effort. Prizes from £5 to £10 are also awarded to the neatest cottages, with or without plants, and for poultry and small sums for knitting, patching and darning.

The Glancullen cottage industrial society offers premiums for the "three cleanest cottages," for hand work and garden produce of all kinds, needlework, washing, breadmaking and carpentering. Flower shows are held as a mater of course; the Abbeyleix cottage competition branch gives $500 annually in prizes and spends $1,000 in the annual flower show and in plants, seeds and window-boxes.

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RELIGION, PHILANTHROPY AND REFORM

EARL GREY TO BUY UP SALOONS

ENGLAND is to see a change in the ownership of saloons, if Earl Grey is successful in maturing his plans. "The public-house trust company, limited," under the direction of Earl Grey, lord lieutenant of the county of Northumberland, proposes to lease or purchase existing saloons, acquire all the new licenses and manage the properties so secured for the benefit of the local community. The company expects to return 5 per cent. interest on its capital and to devote its surplus earnings to the construction and maintenance of churches, schools, parks, theatres, libraries, hospitals and baths.

Speaking of his enterprise in an interview Earl Grey said:

"Regulation is the only weapon with which we, here in England at least, fight the trade intrenched behind £20,000,000 ($100,000,000) of annual net profits. We figure that so long as the people will and must drink, their spendings should come back to them instead of merely still further fattening a gluttonous private monopoly. We hope to promote temperance, first, by revolutionizing the entire saloon atmosphere, and, secondly, by pushing forward the sale of non-intoxicants. A third means is by giving tea and coffee and food prominence over beer, whisky and spirits. We shall operate in the beginning in the rural districts, invading the cities by degrees."

Lady Henry Somerset is not so sanguine of results and tersely stated her opinion as follows:

"I know Earl Grey to be a most enthusiastic and devoted philanthropist, but if his methods are to succeed he ought to have begun them 200 years ago. Alcohol has too long possessed the race's brain for it to kill those tendencies in any other way than by the total abstinence of several generations."

END OF GAMBLING IN BELGIUM

BELGIUM has come to the conclusion, after long and rather bitter experience, that gaming tables pay no one except the proprietor. Hence the passage of a stringent law tnat is of more public interest than has generally been supposed, for it means that the greatest gambling hell of our generation has come to the end of its rope, and that one of the most prosperous cities in Europe is in danger of collapse.

Ostend, the real gambling center of the world, is doomed. Great as are the amounts distributed at the Monte Carlo, nearly if not twice as much have been distributed at Ostend and Spa, the Belgium gambling resorts.

In the last season, only three months long, the tables at Ostend alone made a net profit of $1,400,000, after turning over to the municipality a third of a million in taxes. On top of that each club found it profitable to pay out of its own pockets $16 of each intitiate's fee of $20.

A few years ago any one could leave London at night and be busy losing his sovereigns the next morning on almost any corner of Ostend, at any kind of a game of chance, without the slightest let or hindrance. Ostend and Spa did not object to that at all, but when the rich men's sons at home began to squander their patrimony at the local tables, when Belgium society women lost their own and their children's fortunes, when suicides and forgeries growing out of losses at gambling became startlingly frequent, a bill was brought into the legislature a few weeks ago suppressing all public gambling. With some modifications it was passed, in spite of the fierce opposition and powerful lobbies of the interested parties.

PEW DOORS OBSOLETE

THE time was when the door to a pew in church was considered an essential in church equipment. The change which has taken place in this regard was commented on recently to an interviewer of the New York Sun by an old dealer in church fittings and equipment. He said:

Fifty years ago in most Protestant churches there were pew doors. While used in Catholic churches also, they were not so common. In those days the pew door was an institution; now it is pretty nearly obsolete. There are still some in use. They will be found here and there, yet, in some of the old Protestant churches, as they may be occasionally, too, in some old Catholic churches; but they constitute no part of the equipment of any new church, and in many old churches the pew doors have been taken off as unnecessary and in the way.

There are various reasons for this. Conditions have changed for one thing. In the old days pews were more commonly rented entire. Now there are more free churches, more free pews, and there are rented now-a-days a greater number of individual sittings. In such conditions a pew door is not in any degree a necessity; it might indeed be undesirable in itself. Partly opened or closed the door was in the way; it might squeak; it was likely to be slammed in opening or closing.

In Catholic churches, where it is still the common, prevailing custom to rent the pews and where there might still be some need for a pew door its place is now to some extent taken by a modern attachment called a pew guard. This is a simple but sightly strip of stitched leather attached at one end to the inner side of the upper part of the endpiece of the pew next the aisle, the other end, when the guard is not in use, hanging down over the pew arm. And so the pew door, once in common use, and commonly considered an essential adjunct in the fittings of a church, has now, by common consent, virtually disappeared from use.

RELIGIOUS LIEE IN RUSSIA

NATHAN M. BABAD, who is a native Russian, educated in Russian schools and brought up under the eye and training of the Greek church, recently contributed to the Los Angeles Times a special article on "The Land of the Czar." He asserts that he is not a revolutionists nor even a Nihilist, so that this extract will be lent additional force.

Russia has a population of 125,000,000. Of these hardly 5 per cent. can read or write. This is not because the people are by nature averse to light, or born blind, deaf or dumb. Experience shows that given an equal chance a Russian will seldom prove inferior to any other lad in matters educational. On the contrary, in no other land is the longing for education so intense, so persistent as in Russia. In no other country is this longing so suppressed as in Russia. If light is the motor that turns the great wheels of constitutional kingdoms like Germany and England and republics like France and our own, it is darkness that makes the despotism of Russia hold its own in the teeth of all opposition at this enlightened twentieth century—darkness on one hand, religion on the other; not religion that teaches you to love your Creator, to obey His commandments, but a religion that from the moment you see the light of day till the last shoveful of earth is settled upon the casket holding your remains tells you that the Czar is God's representative on earth, that to think of him with distrust, to worship him less than you would your Heavenly Father is a sin that the ever-ready police will take out of your body on earth, and the One above of your soul in the hereafter; a religion that forbids you to reason, lest you doubt, that tells you to be blind lest you see. The state and the church are one. If it is the crown that bears all expenses in feeding every clergyman throughout the land, it is the clergyman that sows the seed of blind obedience, that surrounds the darkness with a halo of divine radiance. In short, darkness, illiteracy, is the great rock upon which the empire exists.

PUBLIC WORSHIP IN AUSTRALIA

FREDERICK DOLMAN, author of "Great Municipalities at Work," in the course of a series of extended articles on Australia adds these brief comments on the religious situation:

By some leaders in the churches, the growth of great cities is lamented as producing an indifference to religious worship. Rural Australians are said to be much better church-goers than the citizens, notwithstanding the difficulties, arising from the distances to be traversed, with which their church-going zeal is confronted. Civic patriotism has enabled both the Church of England and the Roman Catholic to raise fine cathedrals, and the city edifices of other denominations have doubtless gained much from the same cause. At the same time many things show that the majority of the people do not attend regularly, although I doubt if the number of absentees is much larger than in any cities of similar size in England. At one time the Sunday of Australian cities resembled in many respects the Sunday of Edinburgh and Glasgow. Public houses are still closed, but the art-galleries, zoological gardens, and similar institutions are open, and in many ways Sunday has become a day of general recreation.

In Java a small state exists which is entirely controlled by women, with the single exception of the sovereign, who is a man. He is, however, entirely dependent on the three women who form his state council.

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D. L. BLEDSOE.

SYRACUSE, N. Y.

I like your plan.

(Prof.) HAMLIN C. COGSWELL,
Director of Music.

HALLECK, MINN.

The principles enumerated in your teachings have proven of constant application in my work and in my study of music. (Rev.) P. B. PEABODY,
Rector St. John's Church.

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I have been a student of music for the past eighteen years; I have been a popular teacher and player for the past fourteen years; I was graduated from a good conservatory at Kansas City twelve years ago, but I have never yet read or heard anything that has so impressed me as your prospectus. I have found that which I have always wanted—a concise, scientific exposition of the *laws* governing music. I am a student, a thinker, and can read between the lines, hence the enthusiasm expressed.

MARY A. REESE.

CHICAGO, June 18, 1900.

MISS J. L. MANGAN, Ocean Grove, N. J.

Dear Madam:—If you wish to study music and cannot attend a conservatory, I should advise you to take the course offered you by the Chicago Correspondence School of Music. I do not know that there is any advantage in attending a conservatory. It is, after all, your personal work that is of value to you. I am familiar with the school and its methods, and know Dr. Marcus L. Quinn, the director, personally.

If you cannot afford to come to this city, and spend a year or two receiving instruction from masters, I should advise you to take up their course, because I know what it is. It is better to learn correctly what you do learn, than so much that you have to unlearn. Very truly yours, TH. BERESINA.

Mr. Beresina was born in Austria, studied in Vienna under the masters, Joseph Hellmesberger and S. E. Grun. He afterwards became concertmeister in the Stadttheater at Bruenn; later solo violinist on a concert tour through Russia, the success of which resulted in his receiving a call to London as solo violinist to the Prince of Wales Club Orchestra.

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Late Director of Salem Conservatory, and late of New England Conservatory.

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Believe it to be the very best method of study I have ever read or know of in the Musical world. I know whereof I write. ERNEST WOODWORTH.

869 THE ROOKERY, CHICAGO, ILL.

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WM. N. HOLMES.

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I realize that through the few lessons I have taken from you I have gained much knowledge of music. In fact, I feel that I know more about music since I have taken these lessons from you in this composition course, together with the piano course, than I have gained in all the lessons I have taken in the past.

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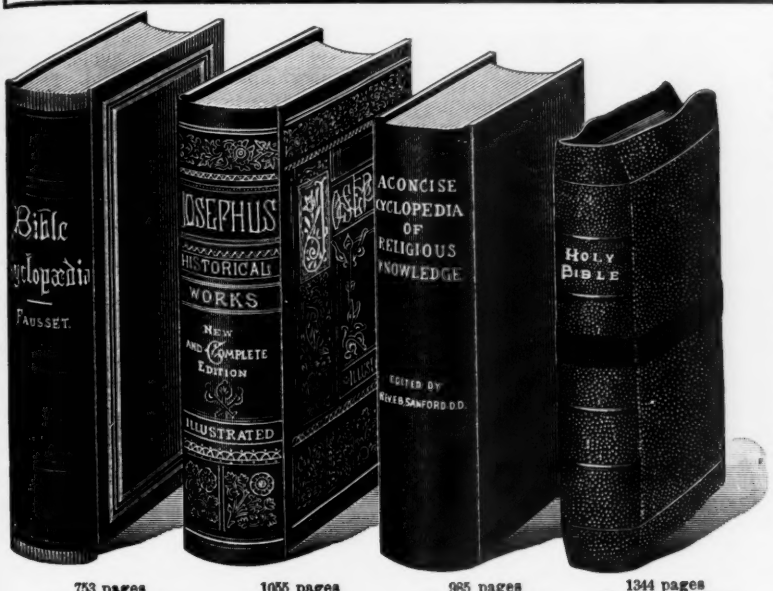

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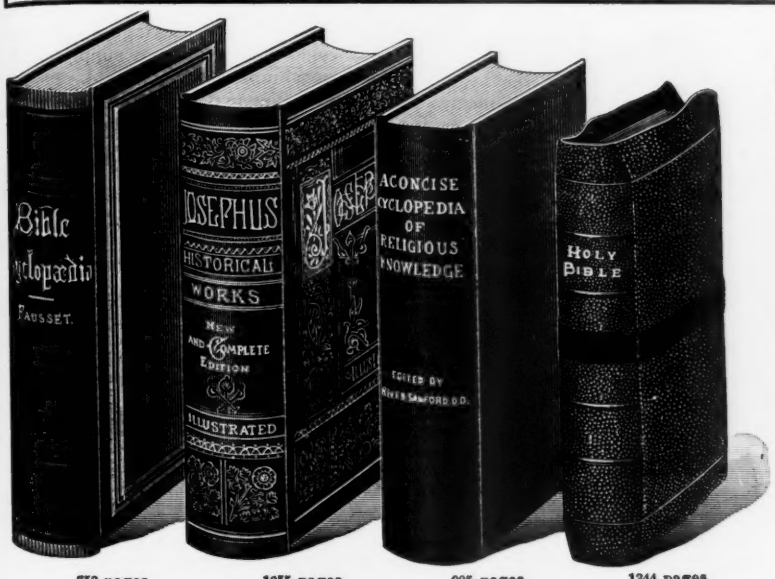

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SOCIOLOGY, LABOR AND COMMERCE

TRAINING for HOUSEHOLD SERVICE

THE Young Women's Christian Association of Boston is endeavoring to find a solution of the domestic service problem, and the school it has established is proving successful. In a visit with the superintendent she stated to a correspondent of "Good Housekeeping":

We have twenty girls in training. The course is six weeks in length; then a girl with average intelligence and interest in her work is ready to graduate. We accept girls of sixteen years and upward, and the training is free. During that time they have a comfortable room, good, healthy board, and instruction in any special branch for which they seem best fitted. Our girls come to us raw, uninformed, unlearned, in hundreds of cases knowing not one word of English. Frequently they arrive at the school fresh from crossing the Atlantic.

The first work a girl is set at is the care of her own room. She is taught about airing and making a bed, cleaning windows, dusting, sweeping, the care of a rug, and mopping a floor. After two weeks of this she begins work in the halls, closets, and the rooms of the teachers and offices. She has her own set of brooms, brushes, and dusters, and learns to keep them clean and in good order. Last of all come the parlor and dining-room, with the attention to small detail which is needed there. Six weeks' training passes before the girls go into the kitchen and dining-room as cooks and waitresses. Before that time they have generally learned a great deal. As a rule they are eager to go in the kitchen. The cooking lessons, as given in our experimental kitchen, which they all attend, make them look on cooking as the pleasantest branch of our work.

PROTECTS EMPLOYES in HOLLAND

AN important law has just been enacted in Holland which places employers under special obligations to their employes. Minister Newell at The Hague, has sent an interesting report to the state department at Washington in reference to it. The measure has had the action of the states general and has received the royal sanction. The law, which had been sent to the state department, and is on file there, contains 116 articles and places 61 classes of labor to which, if motor power is used, it shall apply.

The law provides that the employer shall notify the state insurance bank, which shall be at Amsterdam, of his trade, shall inform him of the class under which his trade falls. It also is provided that the employer shall contribute to the expenses of the bank in proportion to the wages of his employes; he also is made responsible to the bank for the immediate medical treatment of the injured and all the information in the cases.

The bank provides for the necessary medical assistance to the person who in performing his duties is injured so that he is incapacitated for work. In case of death the funeral expenses of the deceased are to be paid and in cases where relatives are dependent upon the deceased for support a fixed sum of money is to be paid them. There is provided for in the law a council, composed of employers and employes with whom appeals from any decision can be filed. The penalties for the infringement of this law renders the culprit liable to fines varying from $40 to $240.

BICYCLE MAKING UNPROFITABLE

THE manufacture of bicycles has reached the stage where competition is fast making it unprofitable in the United States. In this connection it will be of interest to learn that the cycling industry of England is also on a decline. The majority of the English companies have not paid any dividends during the past year, and the outlook portends worse business in the future. It is estimated that no less than $100,000,000 are sunk in the cycle industry in England. During the past four years no less than fifty companies aggregating a capital of $25,000,000 have disappeared. The main reason for this crisis is stated to be over-capitalization, combined with reckless, dishonest trading, while the cycle, although a popular means of locomotion, is being rapidly supplanted by the motor car. The cycle firms at present in a flourishing condition make this industry only a ramification of an extensive business, so that any loss incurred by cycle manufacture is compensated by the financial success of other specialties.

A NEGRO COLONIZATION SCHEME

IN the next Congress efforts will be made to secure such action in regard to the government of the Philippines as will make it possible to set in motion several schemes for the colonization of some portions of the archipelago which are not overpopulated, and which present a promising field for American enterprise. One of these ideas is to start the negroes of the South to moving to the Philippines, where, in a climate congenial to them, and in occupations to which they are accustomed, they can build up for themselves a negro state, with all the strength of free government and the advantages of the Anglo-Saxon spirit of progress. A prominent Western railroad operator who has of late formed a strong alliance with connecting lines to the Atlantic seaboard and with the South, and who at the same time owns a large line of transpacific steamers, has the matter under consideration, and, it is said, will bring forward his scheme at the right time and push it to successful operation. In this proposition he will have not only the support of Republicans, but of the Southern Democrats, who will welcome any practical programme of negro colonization, under the guarantees of constitutional government. At the same time they expect to encourage the immigration to the South of a large proportion of whites from the North, who will take up the problems of improvement and development which the Southerner seems incapable of solving for himself.

THE WORLD'S BEET SUGAR CROP

THE increasing share of the world's sugar consumption which is supplied from sugar beets is pointed out by a publication in the Monthly Summary of Commerce and Finance, just issued by the Treasury Bureau of Statistics. Under the head of "The World's Sugar Crop of 1900" it shows that the total beet sugar production of that year was 5,950,000 tons and the cane sugar crop 2,850,000 tons, more than two-thirds of the world's sugar supply being thus produced from beets. This statement is followed by a table showing the cane and beet sugar production in each decennial year beginning with 1840 and the percentage which these rival sugar plants have in supplying the sugar consumption of the world. This table shows that in 1840 beets supplied less than 5 per cent. of the world's sugar consumption; by 1850 they supplied over 14 per cent.; by 1870, 34 per cent.; by 1890, over 63 per cent., and in 1900, 67.71 per cent.

The growth of sugar consumption is also shown in a striking manner by this table. In 1840 the total sugar crop of the world was only 1,150,000 tons; in 1870, 2,416,000 tons; in 1890, 5,702,000 tons, and in 1900, 8,800,000 tons. The world's population has no more than doubled during the 60 years probably not so much; yet its consumption of sugar is today fully eight times as much as in 1840.

The article in question begins with a statement from the London Statist to the effect that but a single factory in all the United Kingdom now refines cane sugar, all the others being exclusively occupied in preparing for the market the raw product of the beet farms of Germany, France, Austria and Russia.

The following is the estimate of the beet-sugar crop for the year ending September 1, 1900, supplied by Mr. Licht:

Countries:	Tons.
Germany	1,950,000
France	1,125,000
Austria-Hungary	1,075,000
Russia	890,000
Belgium	340,000
Holland	170,000
Other Countries	400,000
Total beet	5,950,000

The cane-sugar crop is estimated as follows:

Countries:	Tons.
Java	670,000
Cuba	500,000
Louisiana	340,000
Hawaii	230,000
Mauritius	100,000
Brazil	150,000
Peru	120,000
Demerara	90,000
Egypt	90,000
Antilles	85,000
Porto Rico	70,000
Philippines	50,000
Trinidad	45,000
Barbados	40,000
Jamaica	30,000
Martinique	30,000
Guadeloupe	30,000
Reunion	30,000
Total cane	2,850,000

The world's consumption of sugar in 1900 was 8,200,000 tons.

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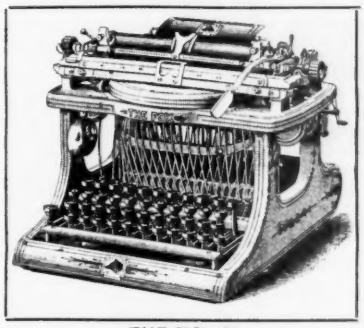

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GEN. HARRISON and the STRIKERS

BEFORE General Harrison was considered for the presidency, back in the seventies, he went through some exciting experiences which showed of what fibre he was made. A railroad strike was in progress in Indianapolis and various parts of the country, and the strikers as usual attempted to hold up trains. The situation soon became unbearable. Thereupon a lot of the substantial citizens, chiefly business men, met and constituted themselves into a sort of vigilance committee, forming a military organization, and hastily improvised ways and means looking to a re-establishment of law and order. The company met and prepared for business. They chose for their leader and captain, Benjamin Harrison. The preliminaries were soon arranged, and then they started for the scene of the disturbances. It was a large company, and it was a company that had a well-defined purpose and the moral courage to carry it out.

One who saw the scene described it in these words:

General Harrison wore a dark suit, a black felt hat, his trousers legs inside of his tall boots—for the streets were muddy. He carried his old war sword upright and looked as stern and defiant as you could imagine. Of course there was intense excitement. What would be the upshot of the approaching clash no one could foretell. We all feared that much blood would be shed. But, luckily, no such dire misfortune occurred. Little Ben marched his company right through the crowd of rioters, and before they could fairly realize what was up a line of glistening rifles confronted them on either side of the railroad track, beside the long train.

'Now start your train, sir, as soon as you please!' shouted Gen. Harrison to the conductor. Then to the crowd—'The train will move this time!'

The mob hooted and yelled, and threatened terrible things. It was a fearful ordeal for the 'Vigilants.' But they stood firm. The locomotive shrieked, the bell rung, the conductor, with pallid face, waved his hand to the engineer, and the next moment the train begun to move.

Hatred and rage pervaded the mass of rioters, but they knew of what material Ben. Harrison was made, they correctly gauged the stamina of the men who held the rifles, and they knew that interference meant death.

Yes; that train went! So did succeeding trains. And from that hour henceforth mobocracy in Indianapolis was under the ban.

TELEPHONE FROM ROME to PARIS

ROME will soon be connected with Paris by a telephone line. The work has been in progress for many months, and the Italian government has completed the installation of the wires on the Italian slope of the Alps. The French government is at work on the line on its side, and it is thought that communication between the two cities will be accomplished during the summer.

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NEW METHODS IN INDIAN EDUCATION

THREE years ago Miss Estelle Reel was appointed general superintendent of Indian Schools and at once began an aggressive work toward the solution of some grave educational problems. Today she is already famous for reforms in the general system of educating the aborigine. The keynote which she sounded after a careful study of the situation has been industrial training and much of her time has been devoted to learning how the best results along this line could be achieved. In her third annual report which is just out she says:

Indian boys should be taught stock-raising and farming, and given a sufficient knowledge of tools to enable them to mend their wagons and farm implements and shoe their horses, and the girls should be trained in the art of practical housekeeping. The teaching of the household duties to the girls is even more important than industrial training for the boys, says Miss Reel, for with the future wives and mothers will rest the fate of coming generations.

The Indian child should be given a knowledge of the English language, but it is not wise to spend years over subjects for which, in all probability, he will have no use in later life. The problem now before us is the selection of the best method for transforming the Indian from a consumer into a producer. He must be brought to the point where he will have a respect for the dignity of labor and where he will have the ambition to support his family and not look to the Government for help. The moment we can induce the Indian to labor voluntarily for his own welfare, from that moment his future will be assured. This point will be reached only through patient application and faithful work along industrial lines.

The Superintendent strongly endorses the outing system as one of the most effective means of training the children in habits of civilized life. The outing system which originated with Major Pratt of the Carlisle School, Pennsylvania, consists in placing the Indian children in good white homes, where they will be treated as one of the family and paid a small sum for their services. Here they are constantly subject to influences of the most practical nature, and acquire habits of right living. The property ownership plan has a prominent place in Miss Reel's system of training, and the cultivation of better crops and more acres of land is constantly urged.

Miss Reel also pleads that a compulsory education law for the Indians be enacted and enforced. She recites the difficulty and often impossibility of inducing the old Indians to permit their children to attend school, and says the future of these children should not be allowed to be blasted by the superstitious ignorance and prejudice of parents. Miss Reel spent over half of her time in the field visiting the Indian in camp and in the school. In doing so she has traveled 41,138 miles, 2,087 miles being by wagon, on horseback, and on foot.

NEW ISSUE OF POSTAGE STAMPS

THE Pan-American Exposition will be attractively announced in the issue of postage stamps commemorative of the event which are to appear May 1. The stamps are of uniform dimensions—0.70 by 1.06 of an inch, the lower side being horizontal. The borders take the colors of the regular series on the same denominations at this date. The words, 'Commemorative series, 1901," and "United States of America" next below appear above the vignette; the legend in a line next below the central opening, with the denomination in a line at the bottom, appears in the same order on all stamps of the series.

The words of denomination at the bottom are preceded on the same line by the word "Postage." All the central illustrations are from photographs as the objects represented appear today, and are to be printed in black.

The 1 cent stamp is designated by a sidewheel lake steamer with one funnel. On the 2 cent stamp are a train of four cars and four parallel railway tracks. An automobile or the closed coach order with two men on the box, and part of the United States Capitol are seen on the 4 cent stamp. The largest single span steel bridge in the world, bearing two trolley cars, with a view of Niagara Falls beyond, is depicted on the 5 cent stamp. The great ship canal locks at Sault Ste. Marie, Mich., are shown on the 8 cent stamp. On the 10 cent stamp is an American line steamship with two smokestacks and masts.